

# NATIONAL TAX JOURNAL

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Volume X, No. 2

June 1957

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PUBLISHED QUARTERLY BY THE NATIONAL TAX ASSOCIATION

*Golden Anniversary Conference on Taxation*

COLUMBUS, OHIO, OCTOBER 21-25, 1957

Headquarters: The Deshler-Hilton

# NATIONAL TAX JOURNAL

PUBLISHED QUARTERLY BY THE NATIONAL TAX ASSOCIATION

Yearly subscription, \$5.00  
(To members included in  
annual dues)  
Single copy, \$1.50

Publication office:  
111 East Chestnut Street  
Lancaster, Pennsylvania

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Communications for the editor, manuscripts, and books for review should be sent to Lawrence E. Thompson, Editor, NATIONAL TAX JOURNAL, Soldiers Field, Boston 63, Massachusetts.

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Entered as second-class matter April 29, 1948, at the post office at Lancaster, Pennsylvania, under the Act of March 3, 1879.

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# National Tax Journal

Volume X, No. 2

June 1957

## THE RISE AND DECLINE OF THE TOLL PRINCIPLE IN HIGHWAY FINANCE—1940-1957<sup>1</sup>

JOHN F. DUE\*

THE year of 1956 marked the beginning of the end of the second era of toll roads. 1955 had been a year of substantial construction and of the development of many new projects, and in January of 1956 it appeared that the movement toward the use of toll roads was still in full swing. Yet by the end of the year, virtually no new construction was being undertaken, and most of the plans for new projects had been abandoned. By the spring of 1957 it was obvious that further expansion of the use of the toll principle was most unlikely (except for a very few projects), and there was doubt even about the continued use of the toll principle on existing routes. This is, therefore, an advantageous time to review this second era of toll roads. First, however, a brief review of earlier highway finance and use of the toll method is desirable.

### *Early Highway Finance and the First Era of Toll Roads*

Early Nineteenth century local street and rural road construction was purely

a function of local governments, carried on with little expert supervision and substantial working out of the road tax, whereby male residents of the area worked on the roads a certain number of days per year. On the other hand, intercity roads were developed and operated primarily by toll road—"turnpike"—companies, predominately private enterprises. These received some public aid and were subject to limited supervision. The total mileage of toll roads was substantial; it is estimated that in Pennsylvania and New York alone, there were over 6000 miles of toll roads. On these routes travelled the stage coaches, the freight wagons, and the great droves of cattle bound for eastern markets. A few major routes were constructed by the states themselves, sometimes financed by tolls, sometimes by general revenues. The federal government seriously considered major road construction, but opposition by groups hostile to federal internal improvements and by the states-rights defenders blocked any general system of federal roads. The one major project actually undertaken by the federal government was the building, between 1811 and 1836, of the National Road extending from Cumberland in Maryland to Van-

<sup>1</sup> I am indebted to my colleague Professor R. W. Harbeson for assistance in the preparation of this article.

\* The author is Professor of Economics at the University of Illinois.

dalia, Illinois, east of St. Louis. But even this road was turned over to the states between 1831 and 1856, and segments were converted to toll roads.

Mid-century witnessed the complete departure of the federal government from the field of road development, almost complete departure of the states as well, and failure of most of the toll roads. The latter were the victims of overbuilding, financial mismanagement, and the development of the railroads. Long distance travel by road came to an end as the railroad network spread; the old turnpikes reverted to state ownership as the companies failed, and were in turn given to the local governments to serve as purely local access routes. Only in areas in the West, in which rail construction came at a later date, did toll roads continue beyond mid-century; as late as the 1860's Mark Twain, in describing the activities of the Nevada territorial legislature, wrote:

"The legislature sat sixty days, and passed private toll-road franchises all the time. When they adjourned it was estimated that every citizen owned about three franchises, and it was believed that unless Congress gave the territory another degree of longitude there would not be room enough to accommodate the toll roads. The ends of them were hanging over the boundary line everywhere like a fringe.

"The fact is, the freighting business had grown to such important proportions that there was nearly as much excitement over suddenly acquired toll-road fortunes as over the wonderful silver mines."—*Roughing It*.

Road construction and maintenance became solely a local government function, regarded as a typical routine operation of government, and financed, except for the "work-out" labor, by

the general property tax. By the end of the century the United States had one of the civilized world's poorest road systems; the railroad reigned supreme.

### *Revival of the Road System and the Coming of the Automobile*

Toward the end of the century, before the automobile was yet important, redevelopment of the rural road system commenced. The rapid increase in the use of bicycles played a part; more important was the desire of farm and village dwellers for increased mobility. But development of the use of the automobile, particularly in the second and third decades of the Twentieth century, was the major force leading to a revolution in road development and finance; the automobile made intercity road traffic feasible once again and required greatly improved road surfaces for satisfactory operation.

Several major changes occurred in road policy. The first was the replacement of "work-out" labor by road taxes. Another was the transference of many road functions from the township to the county to allow improved operations. A third was the inauguration between 1895 and 1915 of state participation, first taking the form of state grants for local roads and, promptly thereafter, of the establishment of state road systems directly operated by state highway departments.

In the field of highway finance, the rule became firmly established: all roads, except major bridges, should be financed by tax sources, not tolls. There was wide acceptance of the point of view that the roads should be free to all and little inclination to return intercity road construction to private companies, in part because earlier experience was by no means satisfactory. But it probably



would not have been possible to adhere to this principle, had not new methods of financing been developed. Continued reliance on the property tax and general state revenue soon proved to be inadequate from a revenue standpoint at politically tolerable rates, and it encountered strong opposition from property owning groups. The development of the use of license fees and the gasoline tax enabled the states to raise large sums of money from the users of the roads with little opposition, and by the 1930's, this method of finance appeared to have solved the problems of highway finance.

Meanwhile, in 1916 the federal government reentered the highway field to a limited extent by providing a system of grants-in-aid to the states for highway purposes, primarily in order to speed development of an integrated interstate highway system. Several rules were rather firmly established: the federal government did not take over construction but left the initiative in the hands of the states—it did, however, provide limited supervision; the grants were initially concentrated on the major routes but gradually were extended to more and more minor roads; a rule of 50-50 matching of federal funds was imposed; and use of the toll principle on federal aid routes (except major bridges) was banned.

#### *The Immediate Prewar Situation*

By 1940 the highway finance picture had fairly well stabilized. The major routes were financed largely by state gas tax and other motor vehicle license fee revenue; and at existing rates the revenue was reasonably adequate for the requirements of highway development. In some sections, particularly in the East, it was apparent that substantial rebuilding of the now obsolete major routes

would be required, but the problem was not regarded as an insurmountable one. It is true that during the 'thirties some revival of discussion of the toll principle developed, and, as noted in a later section, the first of the modern toll roads—that in Pennsylvania—was built. But in large measure the projects were regarded as depression-relief measures rather than as an essential means of meeting the highway problem. In its well known report in 1939, the Bureau of Public Roads stressed the limited applicability of the toll principle and, in general, recommended against its use.

During the war years, in which construction virtually ceased and maintenance was neglected, it became apparent that a serious catching-up problem would exist in the postwar years, particularly in certain areas, but there was little foresight of the seriousness of the problem.

#### *The Postwar Situation*

By the end of the decade of the 1940's, it was recognized that a problem of the first magnitude was facing the country. In the 1950's it was evident that the problem was getting more serious rather than less; unless drastic action was taken, the task would be out of hand. The problem itself was obvious: many roads were completely inadequate for the traffic which they handled, with consequent congestion, delays, and accidents. In some instances the situation was one of almost complete paralysis of movement during peak load periods, because the roadways did not offer adequate capacity to move the number of vehicles seeking to use them. But more commonly the problem manifested itself in the form of a slowing down of the rate of traffic flow below potential levels, a high accident rate, and laborious and frustrating driving. This situation arose

from a series of factors: the movement on two lane roads of large numbers of vehicles of substantially different speed, all held down to the rate of travel of the slowest for long stretches; the intermingling of long distance and local traffic; and the subjecting of through traffic to the obstacles of traffic signals and constant inflow and outflow of vehicles from and to the highway. Inadequate pavement width, broken surfaces, sharp pavement edges, and excessive curvature were additional hazards. Many highways followed the paths of Indians, cows, or primitive road-makers of a century ago.

The problem, however, is a spotty one; a high percentage of the highway mileage of the country is entirely adequate for the traffic which it carries. The difficulty is encountered largely in and near urban areas, on some intercity routes between large cities, on mountainous roads with considerable traffic volume, and on roads with surfaces laid many years ago. For example, on the main central transcontinental route from Chicago to San Francisco (U.S. 30 and 40) many segments are entirely adequate, despite a heavy volume of traffic (for example, in Nevada, parts of Wyoming, and other areas), while some sections are grossly inadequate (such as the stretch crossing the Sierra Nevada mountains in California and portions in Illinois with heavy traffic and inadequate pavement laid many years ago).

The problem is also largely a peak load phenomenon. The greatest congestion occurs in urban areas during rush hours, when the through streets, even in many relatively small cities, become inadequate for the volume of cars using them; during the rest of the day and night they are not used to capacity.

Other roads become jammed beyond capacity on Sunday afternoons and evenings, and others during the peak of the summer vacation season.

Unfortunately, however, the roads which are the most inadequate are also the most expensive to improve, largely because they are located in heavily populated areas.

### *The Causes of the Problem*

The highway problem is a product of several factors, which can be summarized briefly:

1. The lag in construction during the years of World War II and to some extent during the 1930's, when state expenditures for highways declined. It is most unfortunate that greater reliance was not placed on road construction during the 'thirties as a depression-relief measure.

2. Effects of inflation in increasing the costs of highway construction. For example, the California highway construction cost index (base 1940) reached 212 by the end of 1955 and 250 by the 3rd quarter of 1956.

3. The obsolescence of many existing roads. The standards necessary for present day traffic are substantially higher than those of two decades ago. Elimination of curvature is particularly important on two lane roads to facilitate passing of slowly moving vehicles. Even more important is the need for relocation of highways to bypass cities and towns; the funnelling of through traffic via city streets is one of the worst causes of delays and accidents. Cities originally fought diversion of traffic from their streets with all their political might; they now typically recognize their mistake. But the relocation is often very costly.

One of the chief factors causing the

older roads to become obsolete has been the rule of unlimited access; roadside businesses were free to establish themselves on the highways as they pleased. The result was constant creation of more and more congested areas, even on newly built routes. It is recognized today that access to heavily travelled routes must be limited to a small number of points, but on existing roads this is difficult to do.

4. The "increasing-cost" nature of improvements in existing routes. If the traffic on a highway increases to the level at which four lanes are needed in place of two (a three-lane road is now regarded as a major death trap), the cost (quite apart from inflation) will be far greater than that of providing the two original lanes. Two alternatives are usually possible: the existing highway can be widened, or an entirely new one built. The first alternative is often rendered impossible, from a cost standpoint, because the development of roadside businesses and housing has made the cost of widening the right of way prohibitive. Thus the building of a completely new road is often preferable. But an entirely new right of way, also extremely expensive, particularly in urban areas, must be acquired.

5. The rapid increase in car usage, and the sharp rise in the volume of heavy trucking, particularly in certain areas. Total vehicle-miles travelled almost exactly doubled between 1940 and 1955, and on many roads the number far more than doubled. Truck traffic increased from 16 to 18 per cent of total highway traffic; and ton-mileage of all trucks rose  $3\frac{1}{2}$  times; large truck-combination units increased their total ton-mileage nearly fivefold.<sup>2</sup> Weight

limits were liberalized by many states; despite this, overloading of trucks has been rather common, with sharp increases in destruction of surfaces.

6. Special factors in metropolitan areas. The most pressing road problems are those in and near metropolitan areas; these are in part due to the general factors noted above, but in part to special developments in these areas. One is the particularly rapid growth of population in many such areas; closely related is the increased suburbanization, which requires increased transportation and, in many instances, lessens the dependence on public transport. Finally, the general decline in public transit facilities, largely a result of increased use of automobiles, is also a cause of further increases in auto use.<sup>3</sup> As public transit service has become less frequent and in other ways less satisfactory, still more persons have relied upon their own cars. Decentralization of shopping centers, factories, and other businesses has also necessitated greater reliance upon the private car.

#### *The Obstacles to Adequate Increases in Highway Construction*

The factors which have necessitated a rapid increase in road development, as outlined in the previous section, are obvious. But what has been responsible for the lag in road construction behind the increasing needs? In absolute terms, substantial amounts of money were being spent on roads; in 1954, for example, total road expenditures of all levels of government were \$6.2 billion, or about 2 per cent of GNP, and new road construction expenditure was about \$3.7 billion, or 1 per cent of

<sup>2</sup> By way of contrast, railway ton-mileage increased only about  $1\frac{1}{2}$  times over this period. In 1955, railways carried about 50 per cent of all intercity ton-miles and trucks about 20 per cent.

<sup>3</sup> Total passengers carried by urban transit vehicles has declined from 17 billion in 1929 to 12 billion in 1954, despite the great increase in urban population over the period.

GNP. But obviously these sums were inadequate; several factors have been responsible.

1. Failure to make adequate adjustments in the gasoline tax rate.<sup>4</sup> Unfortunately the gasoline tax yield, while increasing substantially, has not kept pace with needs. One source of the difficulty is the specific nature of the rate of the tax, which prevents the yield from keeping pace automatically with inflationary trends, as do *ad valorem* rate taxes. Adjustments in the rate were therefore necessary if the yield were to be maintained in real terms, apart from increases necessary to meet the needs arising out of the growing use of the highways. But the state legislatures have been very slow to raise the rates. Between 1941 and 1954, 35 states increased their gasoline tax rates, from 13 to 64 per cent (with a weighted average increase of 27 per cent), while highway construction costs doubled. Thirteen states made no increase at all. The median rate in 1956 was six cents per gallon, while in 1940 it was four cents. Lags in adjustments of motor vehicle license fees were equally great. Thus the legislatures were not only unwilling to provide funds to meet the increased highway use, but they were unwilling even to keep the yield in line with price level changes. There were several reasons. One was mere inertia and the dislike of many legislators for any upward adjustments in tax rates. Another was the strong political pressure applied by various lobbies of road

users, particularly commercial vehicle operators, and oil companies, against increases. This short sighted policy on the part of these companies is difficult to understand, but it nevertheless was very prevalent. In some states quarrels over relative increases in the gas tax and license fees on larger vehicles retarded the making of any adjustments.

2. The allocation formulas. A second difficulty was the use by many states of obsolete formulas for allocation of highway revenues between the state and local governments, and also among various state highway projects, which retarded the construction of the most needed routes. As the state highway systems first developed, the greatest need for funds was in rural areas, since main city streets were already paved after a fashion. This factor, coupled with the dominance of many state legislatures by rural areas, resulted in the establishment by law of allocation formulas (both for grants of state highway-user revenues to local units and for geographical allocation of state highway expenditures themselves) which bear little relation to present day needs, and limit the use of funds on the relatively few, very expensive roads which are in greatest need of reconstruction. Some of the major and most needed projects are so expensive that they would drain most of the state funds for several years. Adjustments in the formulas are often politically difficult to make.

3. Obstacles to borrowing. With tax funds inadequate, the only alternative has been borrowing. But many states were reluctant to take this step, partly because of the belief, on the basis of the experience of the 1930's, that the highway needs would continue at a high level. Also, many states are subject to severe constitutional limitations on bor-

<sup>4</sup> In 1956, the states raised \$2,687 million from gasoline taxes and \$1,291 million from license taxes on vehicles and operators. The states also received \$739 million from the federal government for highway purposes, and borrowed \$337 million (apart from toll-road borrowing). The states spent \$3,314 million on their own highways, and granted \$984 million to the local governments.

rowing; a popular vote is often required, often more than a simple majority, and is difficult to attain.

4. Local highway finance. At the level of the municipalities, the problems of financing are even greater; these units do not (except in a few instances) have their own road-user levies, and any increase in expenditures must come from other tax sources, particularly the property tax. But other local functions, particularly schools, have been in great need of additional funds, and resistance to further property tax increases is very strong.

5. Full employment. While the lag in highway construction is largely a product of inadequate financing, it is not solely so. The last decade has been one of full employment and inflationary tendencies. During at least a portion of the period, materials needed for highway construction, such as steel and cement, were in short supply. Trained engineers were available only in limited numbers. Obviously highway programs, if adequately financed, could have bid the materials and manpower away from other uses in some instances. But this causes delays and inevitably retards the program; furthermore, had this been attempted, the overall cost of the new highways might have been far greater than the apparent gap in highway construction between the actual and needed levels, at prevailing prices.

#### *The Success of Some States with Traditional Methods*

Despite the obstacles, some states have met their highway problems in relatively successful fashion by traditional methods of finance, with sharp increases in gasoline taxes and license fees. California, for example, has made great progress by traditional methods, in the face of

an extremely rapid growth in highway use.<sup>5</sup> Some of the predominately rural states, such as Nevada, have likewise solved their problems with little difficulty. But most states have not in practice done so, at least by usual methods of finance; as a consequence, a number have turned to the use of toll roads, and the federal government has sharply increased its own highway expenditure program.

#### *The Causes of the Revival of the Toll Road Movement*<sup>6</sup>

The revival of the toll road method of financing has developed primarily as a means of financing urgently needed routes. It bypasses the financing obstacles inherent in the traditional methods noted in the preceding section, and may be said, briefly, to offer the following advantages:

1. It permitted the financing of the most needed and most expensive facilities, new superhighways between major cities, for which funds were inadequate under existing highway levies and allocation formulas. Many of these routes were of particular benefit to certain areas of the state only, and to certain groups of road users, not to persons of the state as a whole. The toll method provided a means whereby persons specifically benefitting could be made to

<sup>5</sup> In the two metropolitan areas in that state (Los Angeles and San Francisco) the traffic problems have been aggravated by the abandonment of most rail rapid transit suburban service.

<sup>6</sup> The most complete analysis of the modern toll road movement is to be found in the study by W. Owen and C. L. Dearing, *Toll Roads* (Washington: Brookings Institution, 1951). An earlier study was that by the U.S. Bureau of Public Roads, *Toll Roads and Free Roads*, H. Doc., 272, 76th Cong. 1st ses. (Washington: 1939). See also H. E. Davis et al., *Toll Road Developments and their Significance for the Provision of Expressways*, (Berkeley: Univ. of California Institute of Transportation and Traffic Engineering, 1953).



pay the cost.

2. The toll method, with bond financing, permitted the building of the new major routes as a single unit, rather than piecemeal over a period of time, with the advantage that the new roads became available for use much more quickly than would have been possible by traditional methods of finance.

3. To several states, particularly New Hampshire, Maine, and New Jersey, the toll system provided a means of obtaining additional contributions from out-of-state users of the roads, who were in large measure responsible for the congestion of certain routes yet contributed very little tax revenue.

4. In some instances, the toll method insured use of the limited access rule, that is, the limiting of access to the highways to a relatively few points, whereas legislatures were reluctant to establish this rule for free highways.<sup>7</sup> As noted above, one of the main sources of highway obsolescence is the development of roadside businesses.

5. The toll system tended to spread. As one state built a toll road to its borders, its neighbors were virtually compelled to make drastic improvements in connecting roads, and in some instances the toll method was the only available source of funds.

6. The toll method allowed resort to borrowing without the need for popular vote or constitutional amendment. Since the bonds issued were not (except in a few instances) obligations of the taxpayers, they therefore were not subject to usual debt limit rules.

The willingness of motorists to use toll roads while opposing increases in gasoline taxes to provide similar roads free of charge was a product of several

forces. One was the fact that those benefitting from the roads constituted only a small percentage of the total gasoline-taxpayers of the state. A related factor was the fear of motorists that the methods of highway fund allocation would not assure them the most needed roads from a tax increase. The toll was a payment for a specific service received. Another factor was the lag in legislative willingness to approve tax increases which the people as a whole, or certainly large segments of road users, probably would have sanctioned.

### *The System*

The major toll routes, as they have developed, can be described briefly:

1. The Pennsylvania Turnpike. The first modern toll road was the Pennsylvania turnpike, the original segment of which (from Pittsburgh to Harrisburg) was opened in 1940. This replaced a particularly unsatisfactory system of obsolete roads in mountainous country which carried a heavy burden of traffic, with many trucks. It was built on an old railroad grade which had been constructed during the 1880's but never utilized. The building of the road was partly intended as a depression employment measure, and was aided financially by the federal government on this basis. This was the only route completed before World War II, but its success revived the interest of other states in the possible use of the toll method even before the war.

2. The New York-Chicago Route. In the postwar decade, an 825-mile, through toll route was gradually developed to connect New York with Chicago, utilizing the Pennsylvania turnpike as one link. The Pennsylvania turnpike itself was extended to the Ohio border on the west and to Phila-

<sup>7</sup> Only about half of the states provide for limited access rules for free highways.



delphia on the east, and one major branch was built. New Jersey completed the Philadelphia-New York segment in 1952;<sup>8</sup> Ohio carried the route westward to the Indiana border in 1955, and late in 1956 Indiana completed the route to the Illinois border, on the outskirts of Chicago. Illinois is now extending the route around Chicago to the Wisconsin border near Beloit.

3. The New England Routes. The second toll route to be built was the Maine turnpike, 44 miles, completed in 1947 to handle a very heavy volume of summer resort traffic. This was extended to Augusta in 1955. New Hampshire completed a 15 mile link between the Maine route and the Massachusetts border in 1950 and has two other short routes projected. Massachusetts itself is now building a 123 mile route which will connect the Boston area with the New York throughway noted below. In addition, Connecticut has built a 66 mile route from the New York area to Meriden, and has a 129 mile route under construction across the state to the Rhode Island border.

4. The New York State Throughway. New York State completed, in 1954, a 400 mile route from the New York City area to Buffalo via Albany, and is extending this to the western border of the state, and to Niagara Falls.

5. The New Jersey Garden State Parkway, southward from the New York City area to Cape May, 1955.

6. Kansas, Oklahoma, and Texas routes. A substantial network of toll roads was planned in the Southwest, only a portion of which has been built. The first route of 88 miles was com-

pleted in 1953 from Oklahoma City to Tulsa. An extension from Tulsa to the Missouri border near Joplin is under construction, and a link from Oklahoma City to connect with projected Texas line was planned.

Kansas has completed, during 1956, a 236 mile route from Kansas City to Topeka, Wichita, and the Oklahoma border.

Texas projected a number of major routes, from Oklahoma border through the Fort Worth-Dallas area to San Antonio and to Houston and Corpus Christi, about 650 miles, to be built by a semi-private non-profit corporation. Financing difficulties prevented construction. However, the state will complete, in 1957, a 30 mile stretch between Fort Worth and Dallas, and a route northward from this route to the Oklahoma border is still projected.

7. Other routes. Several other scattered routes have been completed or are under construction:

a. In Colorado, from Denver to Boulder, 17 miles (1952).

b. In West Virginia, 88 miles, from Charleston to Princeton (1954), intended as a link in a major route from Ohio to the Carolinas. The connecting links have not been built.

c. In Florida, 110 mile north-south route from Miami to Ft. Pierce, completed late in 1956. This is a major tourist route. Extension northward to Jacksonville is planned.

d. In Kentucky, from Louisville to Elizabethtown, 40 miles, 1956.

e. In Virginia, a 35 mile route from Richmond to Petersburg, under construction.

f. Other routes are projected in Washington, Louisiana, Maryland, Maine, North Carolina and Rhode Island, but many of these probably will not be

<sup>8</sup> The connecting link between the New Jersey and Pennsylvania turnpikes north of Philadelphia, involving a bridge over the Delaware river, was not actually completed until the spring of 1956.

built.

As the first toll routes were successfully developed, the toll movement spread like wildfire, and in many states extensive projects were planned—many of them completely impossible of self-support. The projects were reminiscent of the interurban railway projects of the

souri, was the toll principle specifically rejected as a matter of state policy.

The toll road network, as of February 1, 1957, is indicated in Table I and shown on Figure I. As of that date there were 2,415 miles of toll roads in operation in 14 states, and 836 miles under construction. The total cost of

TABLE I  
THE TOLL ROAD SYSTEM IN THE UNITED STATES, AS OF FEBRUARY 1, 1957

State	Miles in Operation	Miles Under Construction *	Miles Definitely Projected **
Colorado .....	18	...	...
Connecticut .....	86	110 (1957)	...
Florida .....	126	...	279
Illinois .....	...	193 (1958-59)	...
Indiana .....	156	...	...
Kansas .....	236	...	4
Kentucky .....	40	...	...
Maine .....	113	...	...
Massachusetts .....	...	123 (1957)	...
New Hampshire .....	36	40	...
New Jersey .....	296	9 (1957)	15
New York .....	494	134 (1957-59)	...
Ohio .....	241	...	...
Oklahoma .....	88	89 (1957)	...
Pennsylvania .....	397	73 (1957)	...
Texas .....	...	30 (1957)	...
Virginia .....	...	35	...
West Virginia .....	88	...	...
TOTAL <sub>4</sub> .....	2415	836	298

Source: Based primarily on data supplied by the American Bridge, Tunnel and Turnpike Association, and the American Automobile Association.

\* Date in parentheses is expected year of completion.

\*\* In addition, 86 miles in Louisiana and 48 miles in Maryland are regarded as probable. Other possible but doubtful projects include 40 miles in Kansas, 286 miles in Maine, 60 miles in New Jersey, 90 miles in New York, 200 miles in Oklahoma, 213 miles in Pennsylvania, 65 miles in Texas. Projects authorized on a toll basis but either definitely abandoned or indefinitely postponed include Michigan, 290 miles; North Carolina, 125; Pennsylvania, 150 in addition to the figure above; Rhode Island, 40; Washington, 65; Oklahoma, 120; Georgia, 290; Indiana, 131; Ohio, 410; Texas, 650; Wisconsin, 311.

early part of the century. In at least 30 states, toll roads were specifically authorized by legislative action; had all these been built, the total mileage would have reached 8,000, at a total cost of about \$8 billion. Another 5000 miles reached the planning stage. In only a few states, such as California and Mis-

souri, the 3,251 miles will be about \$4.4 billion. An additional 300 miles, 280 of which are in Florida, are scheduled for construction on a toll basis, and another 100 miles are regarded as possible. A substantial additional amount, more than 1,000 miles, is still authorized but regarded as very doubtful. Other pre-

vious authorizations have been either cancelled or postponed indefinitely.

### *Major Features*<sup>9</sup>

The major features of the present toll roads can be summarized:

1. All have been built by state agencies, not by private companies. In Texas the major projected routes were to have been built by a nonprofit private enterprise, but this plan has been shelved.

2. The toll roads are entirely new roads (with minor exceptions), of four-lane construction (except the two lane West Virginia route), in almost all cases with a center dividing strip. There are no traffic signals and no grade intersections. Access is limited to a relatively few points. The intervals between access points vary with the nature of the area traversed; the average interval is 2 miles in New Jersey, 17 miles in Pennsylvania.

3. The toll charge ranges from 1 to 1½ cents per mile for passenger cars. The tolls for trucks depend upon weight, typically ranging from 4 cents to 6 cents a mile for the larger vehicles. An Ohio toll of 11 cents a mile on large trucks proved to be excessive and was lowered in order to gain additional business. The charges do not rise in proportion to weight, the charge on a large truck being only about half as much, per ton, as that on a passenger car. The charge on the latter is the equivalent of about 15 cents a gallon tax on gasoline, nearly three times the present median gasoline tax rate. The total toll charge for a car for the entire New York-Chicago trip would be about \$11.

The tolls have been set largely on the

basis of maximizing revenue and have been changed only when they failed to yield adequate revenue. Maine raised its rate to gain more receipts, while, as noted, Ohio lowered its truck rate in order to lure more truck usage. Little serious attempt has been made to adjust rates in terms of additional costs for which particular classes of vehicles are responsible, or in terms of marginal cost pricing.

4. The cost of construction of the toll roads averages about \$1,200,000 a mile, ranging from \$300,000 to \$2,000,000, with figures as high as \$8,000,000 a mile on portions of the New Jersey turnpike. At present price levels, a typical cost figure would be about \$1,600,000 a mile.

5. The roads have been financed entirely by borrowing (except, in part, the original section of the Pennsylvania turnpike). Most states have financed by means of revenue bonds, which are not obligations of the taxpayers but merely have claim against the revenues of the road. By use of these bonds, the constitutional debt limits are avoided, as well as much legislative opposition. On the other hand, the interest cost is higher. During the 1950-55 period, the revenue bond interest rate ranged from 2.75% to 3.25%, while the states could borrow on general obligation bonds for about 2.25%. In order to reduce interest costs, New Hampshire, and, in part, New York and New Jersey have financed their toll roads by general obligation bonds. Also, Connecticut and Colorado provide for making up of all or a portion of revenue deficiencies from gas tax funds.

6. Financial success. On the whole, with a few exceptions, the toll roads built have been reasonably successful financially. Maine and Ohio encountered

<sup>9</sup> Statistical data in this section have been obtained primarily from Davis, *Toll Road Developments*, *op. cit.*, and American Petroleum Industries Committee, *Toll Road Facts* (New York: 1955).

some initial difficulties, but these have been largely overcome. The New Jersey traffic and revenue proved to be almost twice as great as anticipated, traffic reaching more than 20,000 vehicles per day. The weakest has been the West Virginia turnpike; serving a route of limited traffic possibilities, it has failed to cover expenses and interest and is in danger of bond default. Several of the routes opened in 1956, such as those of Kentucky and Kansas, have thus far failed to earn interest charges. Apart from tolls, rentals for concessions (gas stations and restaurants) permitted on the toll roads have been important sources of revenue, typically yielding from 5 to 17 per cent of total revenue. A typical concession royalty charge on gasoline is 7 cents per gallon. This is a revenue source which states have not yet tapped on free expressways.

7. Truck revenues have been of major importance on several of the toll roads. On the Pennsylvania turnpike, trucks, constituting 24 per cent of the vehicles, have yielded about 65 per cent of the revenue. Ohio anticipated about 65 per cent, but actually gained only about 30 per cent from this source. On both the Maine and New Jersey turnpikes trucks yield about 16 per cent of the revenue.

8. Much of the traffic is out of state in character—60 per cent in New Jersey, 55 per cent in Maine (80 per cent during July and August), 90 per cent in New Hampshire, and 30 per cent in Pennsylvania.

9. The accident rate on the turnpikes has been substantially lower than on the roads which they replaced, but not better than the national rural road average, and not as good as the record on the free expressways in California.

10. Traffic studies show that the toll

roads have generated a substantial volume of new traffic, rather than merely diverting cars from parallel roads. Estimates for the Maine turnpike indicate that 77 per cent of the traffic was diverted and 23 per cent was new traffic induced by the road; for Pennsylvania, 30 per cent was diverted and 70 per cent created (or perhaps diverted from very different routes); in New Jersey 53 per cent was diverted and 47 per cent generated. Traffic on parallel routes declines when the toll roads are built, but much less than might be expected.

On the whole, the toll roads, as they stand today, constitute great improvements over the routes which they replaced. The use of toll financing has brought these major intercity express routes into use far ahead of the time which would have been possible with existing methods of highway financing and tax rates. On a direct return basis, they have justified themselves (with one exception), in some cases being far more profitable than was anticipated.

### *Limitations*

Despite these merits, the toll road approach to financing has been subjected to extensive criticism, for example, from some economists, from the U. S. Bureau of Public Roads, and from the American Automobile Association and other highway user groups. The major objections raised include the following:

1. The cost and nuisance of toll collection. Toll collection costs per dollar of revenue vary substantially, particularly on the basis of the frequency of access points, the average distance travelled, and the uniformity of traffic flow. On the Pennsylvania turnpike the cost is only about 3 per cent, and on the New Jersey turnpike 5 per cent. But

the figure for Colorado is 15 per cent, for Maine, 10 per cent, and New Hampshire 11 per cent. In contrast, the nationwide average cost of collecting the gasoline tax is  $\frac{3}{4}$  of 1 per cent. This additional cost of toll collection is a dead loss to the economy. Furthermore, toll payment is a nuisance to the road user, especially if the system becomes widespread.

2. The interest cost. As contrasted to pay-as-you-go financing, the toll method involves substantial interest costs, and the revenue-bond method increases the figure over that possible with general obligation bonds. However, the interest cost is offset in part by the economies of vehicle operation resulting from the earlier availability of the improved roads.

3. Interference with attainment of a rationally planned overall state highway system.<sup>10</sup> The toll roads meet the demand for improved roads in certain specific instances, but their use may interfere with the long run attainment of an optimum highway network balanced in terms of the traffic needs of various parts of the state. Use of the toll method permits the perpetuation of the obsolete allocation formulas which would otherwise become intolerable, and lessens the pressure toward needed adjustments in gasoline taxes and license charges. The toll financing makes some routes unnecessarily expensive to build and wasteful of resources, since segments of existing routes and rights of way cannot be employed, and access must be rigidly restricted. Integration of the toll and free highways may be difficult, and the state may be reluctant to build adequate free parallel roads for fear of diverting traffic from the toll

road, yet better roads for local traffic may be greatly needed.

4. Limited scope for the toll roads. Partly because of the high costs of construction and collection, toll roads can be financially self-supporting only on very limited segments of the highway system. Experience has by now fairly well demonstrated that a traffic volume of about 5,000 vehicles a day is the minimum necessary for a toll road to be self-supporting.<sup>11</sup> Yet Bureau of Public Roads studies show that not over 8,000 miles of the nation's intercity roads have this volume of traffic. It would be possible, of course, to finance roads partly by tolls, partly by traditional methods. But with this procedure the additional costs arising out of the use of the toll method constitute an extremely high percentage of toll revenue, except in special circumstances. The toll network probably had about reached its limit by 1956; had it been extended much further, many of the routes would not have been self supporting, and substantial waste of resources would have occurred.

5. Unsuitability in metropolitan areas. Closely related is the virtual impossibility of using the toll method where the need for expenditure for road purposes is greatest, namely, in metropolitan areas, where congestion is at its worst and construction costs are highest. In these areas the toll method is particularly unsatisfactory because of the large number of access points re-

<sup>11</sup> The exact figure varies with the construction cost, the nature of the traffic flow, the distance, and the toll charge. At 2 cents a mile toll and a cost of \$400,000 a mile—the lowest feasible today—the required traffic flow is about 5,100 cars. At a cost of \$1 million a mile and a 2 cents toll, 12,800 cars are required, or 25,700 with a 1 cent a mile toll. Note the publication by Edwards, Kelcey and Beck, *A Compilation of Information and Data Pertaining to Toll Road Facilities* (New York: 1956), p. 9.

<sup>10</sup> See D. Netzer, "Toll Roads and the Crisis in Highway Finance", *National Tax Journal*, Vol. V (June 1952), pp. 107-19.



quired, the very short average trip, and the peak load nature of the traffic. These factors would increase collection costs drastically and cause serious traffic delays.

6. Double taxation. An objection sometimes emphasized, although easily solved, is that of so-called double taxation; the motorist on the toll road must pay gasoline tax as well as the toll. This treatment, if it is regarded as objectionable, can be avoided by payment of a subsidy to the toll road out of state gasoline tax funds equivalent to tax collected from vehicle travel on the toll road.

7. Restriction of use. Once a toll road is built, the toll is almost certain to exceed the marginal cost arising from the travel of additional vehicles during the period in which it is not used to capacity. Thus some users are unnecessarily deterred from using the road, and economic welfare is not maximized. Traditional methods of financing do not provide the same incentive to motorists to use the old, poor roads instead of the improved ones. Economically, tolls are most easily justified on roads, old or new, which are used beyond capacity.

#### *The End of Toll Road Expansion*

In January of 1956, it was estimated that about \$2.5 billion of new toll road bonds would be sold during the year, with many new projects being initiated. Actually, during the course of the year, the volume of new financing was \$178 million, and one new project—involving an 8-mile link—was commenced! Plans for some 1,500 miles of new roads were abandoned or shelved. The optimism at the beginning of the year gave way to pessimism so black in the early fall that the bonds of existing roads dropped drastically. By the end of the

year the pessimism had lessened, and bond prices had risen<sup>12</sup>—but it was obvious that the expansion of toll roads was over. There were several factors responsible for this sharp change during the year:

1. The tightening of the money capital market, because of Federal Reserve policy, and the heavy supply of state and local bonds made the cost of raising capital greater, and in some cases almost prohibitive. Early in the year, several projects were postponed because of this factor alone, and, quite apart from other forces, this influence would have delayed the toll road program.

2. The unfavorable financial results of recently completed projects. Early in 1956, it became apparent that the recently completed routes were not yielding expected revenues. Even the Ohio turnpike, one of the best from the standpoint of potential traffic, was obtaining much less revenue than anticipated. The Pennsylvania extensions and the Kansas and Kentucky routes likewise showed revenues less than expected. Since these routes obviously had greater traffic potentials than many of the projects being planned, serious doubts were raised about the latter.

One immediate effect of the earnings picture was a sharp drop in toll road bonds, which increased the cost of any new financing. By the fall of 1956, Ohio bonds, for example, were in the low 80's, and West Virginia bonds, in some danger of default, were down almost to 50.

3. The enactment of the federal highway program. In 1954, President Eisenhower had appointed the Clay Committee to study the highway problem and make recommendations for change

<sup>12</sup> For example, the Ohio toll road bonds, which had sold in the low 80's in the latter part of 1956, reached 93 by March, 1957.



in the federal program. The report of this Committee, issued early in 1955, recommended a sharp increase in the sum of federal grants for highways.<sup>13</sup> A bill embodying the major recommendations of the Committee failed of passage in 1955 because of disagreement over bond vs. pay-as-you-go financing and the types of revenues to be employed, should the latter method be used. With some modifications, the measure was enacted as of June 29, 1956. Briefly, the new program provided:

a. Continuation of the existing federal highway program, with an increase in the annual federal expenditures from \$600 million to \$875 million by 1959. Sharing is on a 50-50 basis.

b. Provision by the federal government of \$27.5 billion over a 13 year period, at an annual rate of \$2.2 billion for most of the years, for the National System of Interstate and Defense Highways (41,000 miles). This represents a seven-fold increase in expenditures on these roads. In this period, \$12.5 billion will be spent for intercity routes and \$15 million on urban expressways and belt routes. The federal government will provide 90 per cent of these funds (up to 95 per cent in states with extensive federal land).

Allocation, after 1959, will be made on the basis of the relative cost necessary in each state for completion of the network—a sharp departure from the old allocation formula. This 41,000 mile network will be almost entirely new construction, utilizing some existing routes. All but 7,000 miles will be of four-lane construction. Federal control over weight limits, access points, and so on will be increased.

c. Increases in taxes on gasoline and other motor fuel, on the sale of trucks and busses, and on the sale of tires, and imposition of a new federal annual use tax on commercial vehicles in excess of 26,000 pounds, at a rate of \$1.50 per 1000 pounds. For the first time the principle of earmarking of federal highway revenue was introduced; all of the revenue of the taxes on motor fuel and tires and the truck use tax, and one half of that from the sale of trucks are allocated to the Highway Trust Fund, to be used for the new highway program.

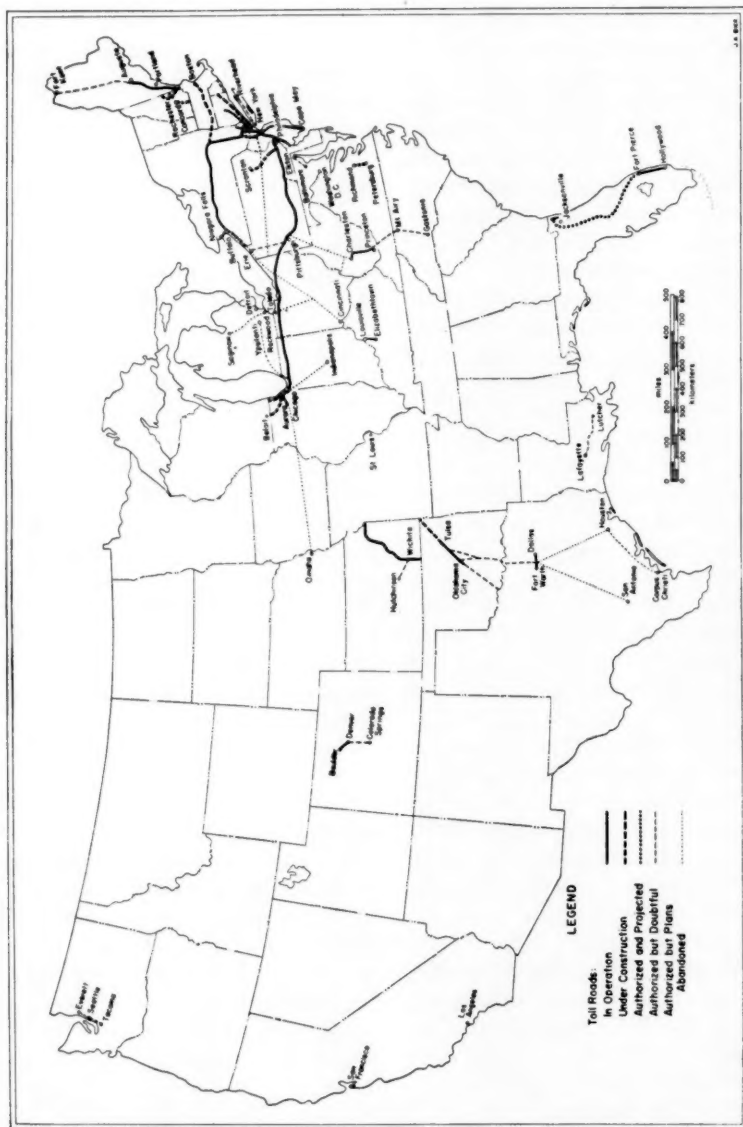
The significance of this program for the toll road movement is relatively clear. The Act itself prohibits the use of any federal funds on toll roads, but provides for incorporation of existing toll roads into the 41,000 mile Interstate network. Most of the roads undoubtedly will be so designated, and thus fears that new free roads will be built paralleling the toll roads have been dissipated. On the other hand, it is obvious that very few new toll routes will be built, since the roads which are most suited for the toll principle will be ones receiving high priority on the federal program, and thus will be built as free roads. The dream of a nationwide system of interstate highways has been ended. However, the existing toll roads will benefit from the program, in all likelihood, because many new free roads will constitute important feeders to the present toll roads. The only potential loss of traffic is that to distant free roads reaching the same terminal cities.

The program does raise some questions with respect to the exact future of the present roads. In a sense the users of these roads will be penalized by the fact that they were constructed prior to the establishment of the new federal program; had they not been built, they

<sup>13</sup> President's Advisory Committee on a National Highway Program, *A Tentative National Highway Program* (Washington: 1955).

would have received high priority under the new program. The 1956 Highway

sibility of reimbursing the states for toll or free expressways built after 1947. If



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Act itself requires the Secretary of Commerce to undertake a study of the pos-

this policy is carried out, presumably some of the toll roads will become free

highways at an early date. In many instances the bonds are callable, though at a premium. Many of the toll roads will eventually become free highways anyway as the bonds are retired. Only a few states, including Florida and New Jersey, are reported as interested in retaining the tolls permanently, as a means of raising revenue from out-of-state motorists.

### *Conclusion*

The use of the toll principle during the last decade has permitted the construction of some of the most urgently needed routes more quickly than otherwise, in light of the reluctance of the state legislatures to provide adequate funds from traditional sources. But the toll principle is subject to serious limi-

tations, as noted, and can be used on only a relatively limited network of roads. Had all the projected routes been built, the waste of resources would have been colossal, and failure of the toll road authorities widespread. Actually, even before the new federal highway program was introduced, the toll movement had gone about as far as it could have on a self-supporting basis, a fact that was becoming evident early in 1956. The effect of the new federal program in putting an end to significant further expansion of toll roads is of substantial merit—even though the federal program itself is open to some serious objections.<sup>14</sup>

<sup>14</sup> The federal highway program is examined in a companion article to this one by the author, scheduled to appear in issue No. 3, 1957, of *Revue de Science Financière*.

## FINANCIAL POLICY FOR HIGHWAYS: IMPACT OF THE 1956 FEDERAL LEGISLATION

DICK NETZER \*

THE Federal-Aid Highway Act of 1956 and its companion bill, the Highway Revenue Act of 1956, approved on June 29, 1956, mark a radical departure from the federal highway policies embodied in the previous 40 years of federal aid legislation. The most important changes include a major increase in the scale of federal government operations in the highway field in the next decade and a half and substantial alteration of the federal government's highway financing arrangements.

More specifically, the federal government will be providing between one-fifth and one-quarter of all highway funds in the foreseeable future, in contrast to 10 per cent or less in recent years. Federal outlays, which last year were at a postwar peak of nearly \$900 million are expected to average about \$2.5 billion annually between now and 1972, rising to \$3 billion in 1972. Moreover, while in the past federal grants have amounted to rather minor shares of total outlays on each of the various road systems managed by state and local governments, thus marginally stimulating their development, the new program provides for the construction and rebuilding at high design standards

of the 41,000 mile Interstate Highway System, almost entirely with federal money. Thus, for the first time, we are to have what is in truth a *federal* highway system, in contrast to our present state and local systems embodying a modicum of federal funds. All this is to be financed by substantial increases in the rates of certain federal excise taxes, collection of which is largely determined by the extent and nature of highway use. And, also for the first time, federal highway user taxes are specifically earmarked for highway purposes and segregated in a special fund.

This legislation will have important repercussions on the overall size of the nation's highway program, on its adequacy relative to growing demand for roads, on the relative rates of development of roads of varying character, on taxation for highways, and on the calls which will be made on the nation's capital market on behalf of highways in coming years. The following pages discuss these effects in the light of federal actions and expectations under terms of the 1956 legislation and of state and local government policies which now seem probable.<sup>1</sup>

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<sup>1</sup> All estimates and forecasts in this article, unless otherwise indicated, are the author's, based in part on U. S. Bureau of Public Roads data for prior years and certain predictions for future years. Stable prices are assumed; steady growth in highway use and vehicle ownership (and by implication, in real gross national product) underlies the revenue estimates.

*Highway Expenditure Levels*

Ideally, publicly provided services ought to compete for finances and ultimately resources not merely with other public services but with the whole range of public and private goods and services. In practice, highways do compete for resources with private demand. They are ordinarily handled outside the regular budgets of public agencies and to a great extent financed by a variant of the price system, that is, charges paid by the users of the service which are related to the quantity and quality of the service consumed. Unlike the services which account for about 85 per cent of all public expenditure, there is rather direct evidence of the demand for highways relative to the demand for all other goods and services. Pricing of the service to individual consumers is practicable and practiced to a considerable extent, and traffic and congestion provide objective physical evidence of consumers' responses to existing prices and supply conditions.

All this is by way of affording an economic basis for the developments in highway policy over the last decade in the face of budgetary and general economic policy considerations, which might seem to dictate a different direction for highway policy. For the growing congestion we witness on the nation's highways provides considerable evidence that highways are both priced too low and supplied in insufficient quantity and quality, particularly the latter. Consequently, there have been steady increases in both the size of the nation's highway programs and the prices charged for highway services, culminating in the 1956 federal Acts.

The very large increases in federal aid authorized in the 1956 legislation, par-

ticularly for the Interstate Highway System, will accelerate the already rapid rate of increase in outlays for additional highway capacity and for preservation of existing capacity. As Table 1 indicates, highway capital outlays in 1956, even in constant dollars, were more than double the rate prevailing in the first five postwar years. By fiscal 1960, capi-

TABLE 1  
TOTAL HIGHWAY EXPENDITURES, ACTUAL AND  
PROJECTED, FOR SELECTED YEARS, 1947-1971<sup>1</sup>  
(In billions of dollars)

Year	Total Highway Expendi- tures	Capital Outlay Only	Capital Outlay Only (in Constant 1955 Dollars)
(Calendar years)			
1947-51 average .	\$ 4.1	\$2.0	\$2.2
1952 .....	5.4	2.9	2.8
1953 .....	5.9	3.3	3.2
1954 .....	6.9	4.0	4.0
1955 .....	7.3	4.3	4.3
1956 .....	7.9	4.8	4.7
(fiscal years) <sup>2</sup>			
1957 .....	8.6	5.4	4.9
1958 .....	9.3	6.0	5.4
1959 .....	9.7	6.3	5.7
1960 .....	10.4	6.8	6.2
1961 .....	10.4	6.7	6.1
1962-66 average .	11.1	7.1	6.4
1967-71 average .	11.7	7.5	6.8

<sup>1</sup> Includes federal, state, and local government expenditures. Although the new federal program formally extends through fiscal 1972, that year is excluded because, in the formal program, it involves large terminating transactions which may be actually spread over several years.

<sup>2</sup> Projected. Assumes, among other things, regular federal-aid authorizations of \$900 million annually after fiscal 1959. Costs assumed to remain at levels prevailing in late 1956 bids.

tal outlays will probably be 40 per cent higher than in 1956, and will continue around that level or moderately higher for the remainder of the federal program, which formally terminates at the end of fiscal 1972.

The slower rate of growth after 1960 is compounded of two factors. The

first is the provision in the 1956 Acts in fiscal 1957 and 1958, while the limiting expenditures from the federal expanded program is still in its infancy. highway trust fund to receipts of the Thereafter, federal aid disbursements fund plus previously accumulated bal- will drop down to the level of current

TABLE 2  
FEDERAL HIGHWAY USER TAX RECEIPTS AND FEDERAL-AID EXPENDITURES,  
ACTUAL AND ESTIMATED, FISCAL 1953-1972<sup>1</sup>  
(In millions of dollars)

Fiscal Year	Receipts <sup>2</sup>	Expenditures			Total		
		Interstate <sup>3</sup>	Primary, Secondary and Urban <sup>4</sup>				
<i>BUDGET (Actual)</i>							
1953	\$ 906	\$ 1	\$ 508	\$ 509			*
1954	855	11	520	531			
1955	977	20	575	595			
1956	1,055	54	636	740			
<i>HIGHWAY TRUST FUND (Estimated)</i>						Surplus or Deficit (-)	
					Annual	Cumulative	
1957	\$ 1,542	\$ 300	\$ 750	\$ 1,050	\$492	\$492	
1958	2,070	1,100	800	1,900	170	662	
1959	2,118	1,500	850	2,350	- 232	430	
1960	2,159	1,600	900	2,500	- 341	89	
1961	2,206	1,395	900	2,295	- 89	0	
1962	2,258	1,358	900	2,258	0	0	
1963	2,313	1,413	900	2,313	0	0	
1964	2,370	1,470	900	2,370	0	0	
1965	2,429	1,529	900	2,429	0	0	
1966	2,490	1,590	900	2,490	0	0	
1967	2,553	1,653	900	2,553	0	0	
1968	2,619	1,719	900	2,619	0	0	
1969	2,686	1,786	900	2,686	0	0	
1970	2,755	1,855	900	2,755	0	0	
1971	2,826	1,926	900	2,826	0	0	
1972	3,139 <sup>5</sup>	2,941	198	3,139	0	0	
Total 1957-72	\$38,533	\$25,135	\$13,398	\$38,533	0	0	

Note: The highway trust fund came into existence in fiscal 1957. Actual data for earlier years were assembled to give figures comparable with the trust fund estimates for subsequent years.

<sup>1</sup> Receipts are those from excise collections credited to the trust fund under the 1956 Act and expenditures are those on the federal-aid programs per se. There are of course other federal vehicle taxes and additional federal spending on forest, park and reservation roads, etc.

<sup>2</sup> Including interest on trust fund balances, 1957-61, and net of refunds.

<sup>3</sup> Includes only expenditures from authorizations specifically earmarked for the Interstate System; in 1953-56, there were appreciable Interstate outlays from other authorizations amounting to over \$100 million each year.

<sup>4</sup> Assuming authorizations totalling \$900 million annually, fiscal 1960 through 1970.

<sup>5</sup> Includes receipts and refunds after June 30, 1972, of taxes and refunds accrued on or before that date.

Source for trust fund estimates: House Document 105, 85th Congress, 1st Sess., "Financial Condition and Results of the Operations of the Highway Trust Fund."

ances, if any. According to current estimates, by fiscal 1960, rapidly accelerating federal outlays will have exhausted the surpluses the fund will accumulate

receipts from the federal user taxes, and the fiscal 1960 level of spending will not be passed again until fiscal 1967. (See Table 2).



Second, at least one major type of highway work not now federally-aided will have tapered off in a few years, the building of new toll roads. This will be due to both the paucity of additional routes suitable for self-liquidating toll roads and the availability of large amounts of federal funds for roads of equally high standards along routes previously suggested for toll construction. This indicates that the increase in federal aid is not all net gain; higher federal aid to a significant extent will substitute for funds which might have been otherwise raised but spent on similar roads. These include not only toll roads but also the highway facilities, especially in urban areas, which might have been built with funds raised by increased state highway tax rates and highway borrowing comparable to the very large amounts of funds borrowed in 1954. The apparent demand for better roads indicates that state and local governments probably have latitude for increasing user tax rates and for borrowing even beyond the fund-raising needed to match federal aid money and continue present non-federally aided programs. Nonetheless, the 1956 legislation will mean more new road capacity completed more rapidly. It appears that highway capital outlays in the early and middle 1960's probably will be of the order of one-fifth greater than they would have been under the federal financial arrangements existing prior to 1956.

*Capacity vs. demand*—Most federal aid funds are concentrated on the main rural and urban roads, which, though amounting to about one-eighth of the country's highway mileage, carry nearly half the traffic. Fragmentary evidence indicates that in the eight years, 1947-1954, despite capital outlays of about

\$21 billion (in constant 1955 dollars), the capacity of these roads increased by less than two-thirds while vehicle-miles traveled on them doubled. Actual travel (in vehicle-miles) is a very conservative measure of demand for roads, since this gives no effect to traffic choked off by congestion nor to the traffic that might be induced by further road improvements even in relatively uncongested locations. Moreover, there is evidence that ton-miles carried have increased more than vehicle-miles traveled (heavier cars and a greater proportion of very large trucks and buses).

Expenditures likely to be made through fiscal 1972 probably will increase the capacity of the main rural and urban roads by about 75 per cent, while travel on them, projecting recent growth rates conservatively, seems likely to increase considerably more—by about 120 per cent.<sup>2</sup> The original proposals for a greatly expanded federal effort, advanced in 1954 and 1955, envisaged a ten-year program. Had the program not been stretched out from ten to 16 years, the additions to capacity by completion date would have exceeded the increase in traffic from 1955 to 1965. As it is, since the Interstate Highway System's capacity will be very much more increased than that of other main roads, the Interstate System undoubtedly will be handling a significantly larger share of total traffic, perhaps 20 per cent of the much larger total in

<sup>2</sup> These rough estimates imply that, whereas in 1947-54 each billion dollars of capital outlay yielded about a 3 per cent increase in 1946 capacity, each billion dollars in 1955-72 will yield only about a 2 per cent increase in 1946 capacity. This is because highway authorities naturally exhausted the cheaper ways of increasing capacity in the earlier period, and because today's higher and more expensive standards are not fully reflected in the crude measures of capacity used for these estimates.

1972 as compared with 14 per cent in 1954.

This indicates that the shortfall in capacity relative to demand will not be as critical as the above comparison indicates, since capacity is likely to increase most rapidly on those sections of the road network most congested now. Also, the elimination of strategically placed bottlenecks will help greatly in particular locations. The sections with some excess capacity today will have much less further development. All in all, highway users are likely to be better off 15 years hence, but 1972 will hardly mark the end of large scale road building in the United States.<sup>3</sup>

#### *Composition of the Program*

There is considerable evidence that the growing inadequacy of the nation's highway network has not been primarily due to a lack of money and resources for highways overall. Rather, the principal cause seems to be the continuation, until quite recently, of the historic policy of using those resources for many miles of low-grade improvements, many on roads serving little traffic, rather than concentrating them on high-grade improvements on the few miles of heavily travelled roads. Highway financial pol-

icy on both the state and federal levels has worked in this direction. To an increasing extent, state government policies recently have been changing in emphasis, and the 1956 federal legislation also will work in this direction. However, it is clear that, during the next 15 years, despite the shift in emphasis, the distribution of highway outlays still will not be entirely in accord with the distribution of traffic or the origins of highway revenues.

The federal government's share of the responsibility for this diffusion of resources in the past arose from its distribution of funds collected from highway users on the densely used roads in the more populous states to roads systems and states with relatively little traffic. First, federal funds have been available only to a very limited extent for urban roads and the Interstate Highway System; the bulk have been available for less heavily used rural primary roads and for secondary roads. As recently as fiscal 1956, Interstate and urban projects represented only about 45 per cent of the cost of all federal-aid road work completed.<sup>4</sup> Second, the apportionment formulas and matching provisions favor sparsely settled states, particularly the public land states in the mountainous West.

Actually, however, federal activities have caused this redistribution only if one assumes that, without the federal program, the states all would have imposed higher tax rates equal to the federal rates producing the grant-in-aid funds and if one assumes that the matching requirement caused the states to divert large amounts of state-raised funds from other road work. If these assumptions hold, the more populous states and

<sup>3</sup> The capacity estimates presented above are based on expenditure projections which take account of the increase in highway costs between the time the program was being formulated and the present (about 10 per cent), as reflected in the third column of Table 1. Less account has been taken of the fact that the cost estimates upon which the program is based, hurriedly compiled by the states in 1954 and now being revised, appear to have understated significantly the costs of needed improvements, even in terms of 1954 price levels. To the extent that federal revenues exceed the conservative estimates, funds may become available to offset these deficiencies. Also, it is assumed that any provision which Congress may make for reimbursing the states for toll roads and other previous work on segments of the Interstate System will be financed separately, rather than out of funds already authorized and thus will have no effect on new work performed.

<sup>4</sup> Annual Report, Bureau of Public Roads, Fiscal Year 1956, p. 44.

more heavily travelled roads would have been better off without a federal program. However, the assumptions seem improbable; this is the apparent consideration behind the almost universal demand for more federal aid prevalent in recent years.

*Expenditures by road system.*—For the purposes of this analysis the country's 3.4 million miles of roads and streets are divided into three classes or systems, based on the predominant function served.<sup>5</sup> The approximately 400,000 miles of main intercity roads to a minor extent serve abutting property, but primarily carry traffic between cities. The approximately 340,000 miles of streets and roads in urban areas (with population of 5,000 or more) primarily serve traffic originating and terminating within the same urban or metropolitan area, while the remaining 2.7 million miles of local rural roads (including park, forest, and reservation roads) also mainly serve local traffic.

As Table 3 indicates, recently almost half of total highway expenditures have been for the main intercity roads, a little over one-fourth for urban facilities, and a little less than one-fourth for local rural roads.<sup>6</sup> The local rural road total is bolstered by rather high maintenance requirements for the typically less adequate surfacing of such roads; maintenance represents about 45 per cent of local rural road outlays, but only about 20 per cent of outlays on other roads. Capital outlays, on the other hand, recently have been devoted primarily to the main intercity roads, with toll road building, nearly all of which

is on the main intercity routes, weighing heavily in these figures.

By 1960, there will be some significant shifts in the composition of the overall highway program, due entirely to changed emphasis in the construction sector. The current spate of toll road construction will be about over and the Interstate portion of the federal aid will dominate. About half the needs on the Interstate System are in urban areas. Thus while capital outlays on the main intercity roads probably will increase

TABLE 3  
PER CENT DISTRIBUTION OF HIGHWAY EXPENDITURES BY ROAD SYSTEM, CALENDAR 1955  
AND FISCAL 1960 (PROJECTED)

	Main Inter- city Roads	Urban Streets and Roads	Local Rural Roads	Total
Calendar 1955:				
Capital outlay	54%	28%	18%	100%
Maintenance	28	29	43	100
Debt service	54	30	16	100
Other	67	18	15	100
Total	48%	28%	24%	100%
Fiscal 1960:				
Capital outlay	48%	37%	15%	100%
Maintenance	29	29	42	100
Debt service	58	27	15	100
Other	68	17	15	100
Total	46%	32%	21%	100%

by one-third, urban capital outlays should double. Local rural road capital spending should also increase substantially, but since the base is smaller, the share of these roads should decline. Consequently, urban facilities should absorb about one-third of all highway spending, while other roads should absorb relatively smaller shares than recently, despite increases in absolute amounts.

As the federal program continues, a somewhat greater shift of emphasis towards urban facilities can be expected.

<sup>5</sup> The existing legal designations of road systems are based on distinctions as to the governmental unit actually managing the roads, the general character of traffic they serve, and their eligibility for federal aid.

<sup>6</sup> The percentages shown for 1955 apply with only minor differences to 1954 and 1956 as well.

This is for two reasons. First, urban projects have longer lead-times and hence will get moving more slowly in the next two or three years than rural Interstate projects; thereafter urban outlays should proceed apace. Second, under present law, the formula for apportionment of Interstate Federal-aid funds will change in fiscal 1960 to the probable benefit of the more urbanized states. In the late 1960's under these projections, increasing amounts of Interstate funds will become available, while regular federal-aid funds will remain at about the same levels. This means that roads more dependent on regular federal-aid money, notably local rural roads, should absorb a progressively smaller share of total highway outlays. Current trends in state highway policy also lend weight to this surmise.

*Demand by road system.*—Table 4 presents some data which permit a comparison between highway demand and highway outlays. In 1955, urban facilities accounted for a considerably larger share of the estimated 600 billion vehicle-miles travelled than did the main intercity roads, and local rural roads provided space for less than a fifth of the travel. These road systems accounted for roughly similar proportions of the nearly 48 billion gallons of motor fuel consumed on the highways. Because of the relatively large numbers of heavily laden long-distance trucks and buses using the main intercity roads, it appears that these roads bear a somewhat larger share—about 40 per cent—of total ton-miles of traffic. As noted earlier, this is a rather conservative way of estimating demand since, among other things, it does not take account of demand shut off by congestion, which is probably most important in urban

areas. In any case, expenditures on improving and maintaining roads are not distributed in proportion to demand so measured, as the figures on expenditures per vehicle-mile show. In brief, the urban facilities are receiving a far smaller proportion of available funds than their current traffic volumes would warrant (let alone volumes if congestion were less), and the local rural roads are being overbuilt or overmaintained (more likely the latter), relative to other systems.<sup>7</sup>

By 1960, if current and recent trends are any guide, the proportion of total traffic on the main intercity roads should have increased slightly, due in part to induced traffic on toll roads and other newly completed facilities (while urban projects approach completion more slowly). Meanwhile, the proportion of the total carried by the local rural roads should have declined slightly. During the 1960's, however, urban traffic may increase disproportionately, and that on local rural roads even more slowly than heretofore.

By fiscal 1960, the effects of the Interstate program will tend to reduce the disparate treatment of road systems, in the relation of expenditures to traffic. Nonetheless, the conclusion must be that urban roads, although better treated under this program than previously, will continue to be relatively under-supplied, and the relative over-supply probably will be in the local rural road segment.

<sup>7</sup> It appears that significantly larger portions of the traffic occur on urban-type roads than these figures indicate since many heavy-volume suburban roads in metropolitan areas outside incorporated places are classed as main intercity or local rural roads. Offsetting this, some expenditures on these facilities, particularly those made by urban county governments, are classed as rural road outlays. However, in the computation for Table 3, allowance has been made for certain of these expenditures; thus, urban traffic is more understated than urban expenditures are.

Probably, as indicated earlier, main roads could do with more funds overall. Since there should be very little excess capacity on the main intercity roads, save in a few locations, these roads will not be over-supplied. The urban facilities simply will not be expanded sufficiently. No doubt this is as much a heritage of defects in past policy as a consequence of defects in present programs.

*Interstate redistribution.*—One component of the maldistribution of highway resources among road systems has

cases in which absolute lack of resources prevents poorer states from building expensive interstate links so short that their costs could not be defrayed from charges on vehicles using those stretches of road.<sup>8</sup>

As the table shows, the 1956 legislation, with its concentration on the Interstate System for which apportionments are heavily weighted by population (through 1959), provides for some small improvement in the relative position of the states with the greatest highway usage. After fiscal 1959, present

TABLE 4  
DISTRIBUTION OF HIGHWAY USE BY ROAD SYSTEM, CALENDAR 1955 AND  
FISCAL 1960 (PROJECTED)

	Main Intercity Roads	Urban Streets and Roads	Local Rural Roads	Total
Calendar 1955:				
Vehicle-miles of travel, per cent distribution .....	38%	44%	18%	100%
Expenditures per vehicle-mile of travel (cents) .....	1.5¢	0.8¢	1.6¢	1.2¢
Fiscal 1960:				
Vehicle-miles of travel, per cent Distribution .....	40%	44%	16%	100%
Expenditures per vehicle-mile of travel (cents) .....	1.6¢	1.1¢	1.8¢	1.4¢

been the redistributive effects of federal aid. Table 5 indicates the extent of the redistribution among states, contrasting the distribution of highway use and population with the distribution of federal aid under both the 1954 and the 1956 Federal Aid Acts. Incidental to this, there is some redistribution to the poorer states; this, however, is strictly a by-product, due to the relatively large area and road mileage of some of the poorest states. Fundamentally, there is little reason for a national highway program designed to meet the requirements of motor vehicle traffic to so redistribute. The only exceptions might be the few

law provides that the apportionment formula for the Interstate System will shift from a population-area-road mileage basis to a "needed-to-complete" basis. Since the deficiencies on the Interstate System are greatest (in dollar terms) in the more populous and densely-travelled states, there should be a further shift in their direction—from 44 per cent of the federal aid funds to about 49 per cent, for the ten states with greatest 1955 use, while the ten lowest states' share should decline from 8 per

<sup>8</sup> That is, long-distance users might be able to cross these links without purchasing fuel in the poor states, and the links might be unsuited for toll operation.



cent to about 6 per cent. Also, the total Interstate apportionments will be increased \$200 million above the fiscal 1959 level.

Moreover, the shift to the 1960 Census of Population figures, probably for fiscal 1961 apportionments, will improve the relative position of growing urban states like California with respect to regular federal aid apportionments. At present, the use of 1950 population data in the formula penalizes the more

the highways and by borrowing to be serviced from highway user revenues. The changes originating in the new federal program should result in an increase in the share of the total funds derived from user sources, a somewhat lesser role for borrowing, and an increased role for federally-levied user charges.

As Table 6 shows, in 1955 almost two-thirds of all receipts for highway purposes came from highway user tax revenues including tolls, almost one-

TABLE 5  
INTERSTATE DISTRIBUTION OF HIGHWAY USE, POPULATION, INCOME  
AND FEDERAL AID FUNDS <sup>1</sup>

States Ranked According to	Per Cent of National Totals of				
	Highway Motor Fuel Usage, 1955	Population, 1955	Personal Income, 1955	Federal-aid Fund Apportionments	
				For Fiscal 1957 Under 1954 Act	For Fiscal 1959 Under 1956 Act
Highway motor fuel usage, 1955:					
Ten highest states .....	54%	54%	64%	42%	44%
Ten lowest states .....	4	3	3	8	8
Population, 1955:					
Ten highest states .....	53	54	64	41	43
Ten lowest states .....	4	3	3	10	10
Per capita personal income, 1955:					
Ten highest states .....	35	36	47	27	28
Ten lowest states .....	15	16	11	18	18

<sup>1</sup> The District of Columbia is regarded as a state; fund apportionments to Alaska, Hawaii, and Puerto Rico are excluded in the computations.

rapidly growing states. For example, the ten states highest in regard to motor fuel usage on the highways in 1955 had only 52 per cent of the total population in 1950, as against 54 per cent in 1955 and probably 55 per cent in 1957.

#### *Highway Revenues and Financing Requirements*

*Revenues by road system.*—For some time, highways have been financed primarily from revenues collected by governments—federal, state, and local—from taxes and charges paid by users of

eighth from user-charge-backed borrowing, and the remainder from other sources, mainly local property tax revenues. All three road systems were predominantly user-financed, particularly the main intercity roads which absorbed the bulk of state user receipts and two-fifths of federal funds. Borrowing provided about one-seventh of the funds in all, and the federal government a little over one-tenth.

By fiscal 1960, the share of highway receipts derived from user sources, current and future, should have risen to



over four-fifths. More specifically, urban streets and roads should be user financed to a much greater extent, absolutely and relatively—up to nearly three-fourths of the total. Moreover, in the 1960's this should further increase. The federal government should be providing about one-fourth of the

significantly, to approximately the proportion warranted by traffic distribution. That they will continue to be oversupplied is due to the nonuser funds made available for them. User funds should continue to be relatively over-committed to the main intercity roads, which essentially means, as noted ear-

TABLE 6  
PER CENT DISTRIBUTION OF SOURCES OF HIGHWAY FUNDS BY ROAD SYSTEMS  
CALENDAR 1955 AND FISCAL 1960 (PROJECTED)

	Main Intercity Roads	Urban Streets and Roads	Local Rural Roads	Total
Calendar 1955:				
Highway-user sources				
Current revenues <sup>1</sup> .....	78%	51%	59%	65%
Borrowed funds <sup>2</sup> .....	17	9	5	12
Other sources .....	5	40	36	23
Total .....	100	100	100	100
Exhibit: Distribution of user funds among road systems .....	55	24	21	100
Fiscal 1960:				
Highway user sources				
Current revenues <sup>1</sup> .....	81%	61%	66%	71%
Borrowed funds <sup>2</sup> .....	15	13	4	11
Other sources .....	4	26	30	17
Total .....	100	100	100	100
Exhibit: Distribution of user funds among road systems .....	53	30	17	100

<sup>1</sup> Includes state and local motor fuel taxes, vehicle and operators' licenses, and tolls and all federal funds.

<sup>2</sup> Excludes refunding issues. Includes estimated portion of new debt serviced initially from user revenues, whether or not the debt is ultimately secured by the borrower's full faith and credit. For 1960, the deficit in the federal highway trust fund (financed from prior surpluses) is treated as user-backed borrowing.

funds and borrowing about one-seventh in all; the borrowing percentage however should be at a high in that year and should decline thereafter.

Comparison of Table 6 with Table 4 shows that by fiscal 1960 urban facilities should be getting an appreciably larger share of user funds, but still nowhere near the share warranted by the distribution of traffic. Local rural roads' share of user funds should decline

lier, that these roads will be more nearly adequate for the traffic they bear than urban roads.

*Financing requirements.*—In recent years, state-local borrowing for highways, particularly for state toll road construction, has been substantial. At the same time, federal taxation of highway users has been producing revenues in excess of federal highway outlays. Toll road borrowing was at its maxi-

imum height in 1954; more recently state-local highway borrowing has been considerably smaller. In 1955, state-local borrowing amounted to about \$1.4 billion, while the federal "highway surplus" was about \$400 million.<sup>9</sup> In 1956, state-local borrowing declined further (no doubt partly in anticipation of a greatly expanded federal program), while increased federal highway tax rates increased the "highway surplus" considerably.

In the next few years, state-local highway borrowing probably will be at or slightly above the 1956 level, to raise money for the large matching requirements and for expensive road work in and around cities outside the federal program. Meanwhile, the federal highway trust fund will accumulate surpluses through fiscal 1958, but thereafter will operate at a deficit until these surpluses are exhausted. In fiscal 1960, the drain on Treasury finances occasioned by these deficits will be at its maximum. At that point, the combined drain on the municipals market and on the Treasury probably will exceed by a substantial margin that of any other year except 1954. After that, the federal trust fund must operate at a balance under current law, and the projected resumed rise in federal outlays will be supported by rising tax collections. On the state-local level, it appears that highway user tax collections will be increasing throughout the period somewhat more rapidly than non-federally financed expenditures, so that by the end of the 1960's, financing requirements should be very small.

Although the new program thus will impose high financing requirements in

another two or three years, there is reason to believe that had the federal role remained at its recent level, state-local borrowing would have been much higher for some years to come, although perhaps not reaching the 1954 level due to the limited opportunities for further toll road building. On balance therefore, except for a brief peak around 1960, the new program probably will result in smaller demands on the money and capital markets from highways than otherwise might have been the case.

### *Conclusion*

The 1956 federal highway Acts seem likely to produce the following effects, among others:

First, an overall rate of spending significantly in excess of that likely to have occurred under previous institutional arrangements.

Second, a highway network more adequate to meet the needs of traffic, but by no means fully adequate.

Third, a shift in emphasis in the direction of the more heavily traveled roads, particularly those in urban areas, but not nearly enough of a shift to produce a truly balanced network by the program's end in the early 1970's.

Fourth, a relatively greater role for highway user taxes in highway financing, especially current user tax financing.

Fifth, somewhat smaller overall calls on the nation's capital markets for highways over the entire period than might have occurred otherwise; however, the disappearance of the federal "highway surplus" of recent years will increase the Treasury's financing requirements.

These add up to significantly improved financial policy for highways, but hardly policy without defects. By the 1970's, the main rural roads' needs

<sup>9</sup> Essentially, we are here extending the present federal highway trust fund arrangements backwards to give pro forma figures comparable to estimates for 1957 and thereafter.

should be very nearly satisfied. By then, the country's increasingly urbanized population and the remaining vast unmet highway needs in and around cities may force further concentration on these urban requirements, unless urban traffic is far more airborne at that time than now seems likely. The federal highway program adopted to succeed the 1956 program may well be largely an urban one.

No mention has been made here of the new program's impact on the industries

involved in road building or on the economy generally, which may be substantial. Nor has there been any discussion of such specific highway problems as the distribution of costs and benefits among various classes of vehicle users. One major benefit of the 1956 legislation will be the great impetus its provisions specifically give to research on this and similar problems, which could clear up some of the controversies raging in the field of highway policy for over two decades.

## RESULTS OF THE KENTUCKY HIGHWAY FINANCE STUDY

JAMES W. MARTIN, CHARLES R. LOCKYER, AND EUGENE C. HOLSHOUSER\*

LIKE other states, Kentucky faces the problem of financing a modern system of roads and streets. If the value of the highway dollar does not change from its 1953 level during the next 20 years, an average of almost \$160 million a year must be spent to eliminate the numerous deficiencies and otherwise bring the highway system to modern standards. As revealed in Chart 1, revenue under 1955 laws plus federal funds<sup>1</sup> might be sufficient to complete the program in 20 years; however, with revenues in prospect the schedule recommended by the Automotive Safety Foundation could not be followed. This fact suggests the use of bond financing.

The available evidence indicates that highway costs will rise by an average of at least 3 per cent a year over the next 20 years. In the event of a 3 per cent

annual increase, an average of around \$207 million a year would be needed to follow the Automotive Safety Foundation schedule.<sup>2</sup> A bond issue large enough to obtain the difference between estimated revenues and recommended expenditures would definitely be politically unacceptable. In any case, means of paying debt service would be essential. Therefore, if Kentucky's roads and streets are to provide tolerable service with costs rising at the assumed rate, an increase in taxation seems inevitable.

Among other things, the Kentucky finance study attempted to provide a basis for equitably distributing the load among taxpayers and also to ascertain what modifications should be made in the level of expenditures. The need for revenue to finance the improvement program is directly related to the expenditure schedule. In addition to fluctuations in the value of the highway dollar already noted the cost of stop-gap improvements, replacements, and interest all vary according to the timing of expenditures. The effect of timing of expenditures was studied by comparing several selected expenditure programs. All of these problems were analyzed un-

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This article is based on the study, *Financing Kentucky's Roads and Streets* (Lexington: University of Kentucky Bureau of Business Research, 1956). Its substance was presented at the annual meeting of the Highway Research Board in Washington, D. C. on January 10, 1957.

<sup>1</sup> The amount of federal aid that Kentucky will receive was assumed to be equal to the latest estimate of interstate construction and replacement costs plus a continuation of the 1959 figure for other systems. It was also assumed that roughly one-third of average annual interstate funds will be added to other federal aid systems when the interstate system is completed.

<sup>2</sup> In Chart 2 estimated revenues are compared with ASF recommended expenditures, assuming a 3 per cent annual decrease in the value of the highway dollar.

der the assumption that the state would adopt the 20-year program.

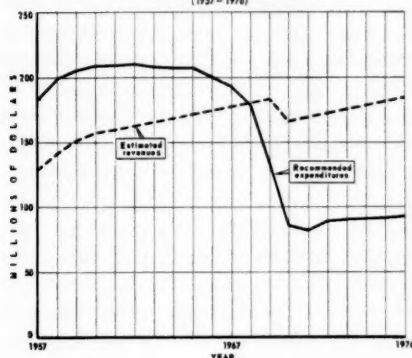
### *Spreading the Burden*

The Kentucky study attacked directly the problem of dividing the costs of highways among the beneficiaries of roads and streets. In doing so, the authors accepted the estimated average annual expenditures for the 20-year program as an approximation of annual costs sufficiently accurate for statistical study.

responsibility from the responsibility of other taxpayers. They referred to the added-expenditure, differential-benefits, standard-costs, relative-use, predominant-use, and earnings-credit solutions, all of which were examined with care.

The Kentucky investigators found that, historically, the state has supplied in 1953 dollars a nearly constant amount of highway revenue from general taxes. Recently, that amount has been about \$17 million. The long-standing public decision on this point was accepted for

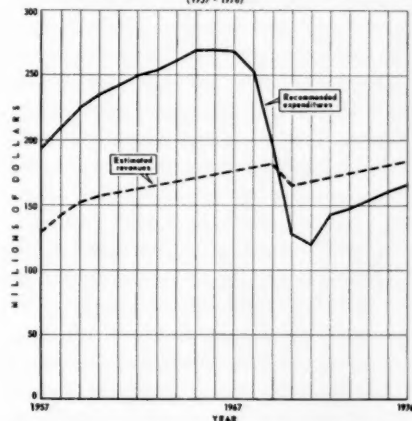
CHART 1  
RECOMMENDED HIGHWAY EXPENDITURES IN 1953 DOLLARS  
COMPARED WITH ESTIMATED REVENUES  
(1957-1976)



The basic problem of dividing costs as thus approximated was conceived as involving for purposes of the investigation (a) division between highway users and other taxpayers and (b) division of user expenditure responsibility among users of various types and sizes of vehicles. The division of responsibility among nonuser taxpayers, an admittedly important matter, was excluded as being largely a problem of general taxation.

The Kentucky authors recognized the previous extensive studies of the differentiation of highway user expenditure

CHART 2  
RECOMMENDED HIGHWAY EXPENDITURES ASSUMING A 3 PER CENT  
ANNUAL INCREASE IN HIGHWAY COST COMPARED WITH ESTIMATED REVENUES  
(1957-1976)



purposes of the study. The authors assumed that about the same amount in 1953 dollars will continue to be available as a long-range political decision; the remainder will be secured from highway user imposts. This historical approach to the assignment of responsibility between highway users and nonusers is admittedly crude as a measure of fairness. But the same is true of other available methods. This historical plan for Kentucky has the merit of prior public acceptance and noninterference with established policy decisions respecting the comparatively rigid local finance

patterns. Under this scheme, assuming no change in highway costs, highway users would be required to pay about 85 per cent of the total amount expended, exclusive of federal aid. Some states in which one or more of the half dozen usual methods of study have recently been invoked (California, Illinois, Michigan, and Ohio) show a range of from 56 to 82 per cent assignable to highway users.

Before considering the distribution of the tax load among highway users, it is necessary to examine the antecedent problem of how to treat federal aid. The usual practice in earlier studies has been to deduct federal aid from the total expenditure requirements for each road and street system before any attempt is made to allocate responsibility among users of various types and sizes of vehicles. This handling of the problem involves possible distortions in the distribution of responsibility. For example, assume that three-axle combination vehicles travel exclusively on the proposed interstate system of highways for which federal aid will provide 90 per cent of the expenditure for construction. If federal aid were deducted from expenditure for the system before the assignment of responsibility, these users would be relieved of 90 per cent of their tax responsibility for this construction. Suppose another group of vehicles which otherwise would have equal expenditure responsibility per mile travels the same number of miles on roads which were constructed without federal aid. The operators of the latter vehicles would be relieved of none of their responsibility. Although common sense would dictate that the responsibility for construction expenditures should be about the same in each of the two cases, strict application of the logic of the usual procedure would as-

sign 10 times as much to the users of the second class of vehicles as to the users of the first class.

Thus, an innovation in method is indicated. In Kentucky the problem was solved for the moment by making assignments on the basis of total expenditures. That is, the relationships among various road and street users were established *before* any deduction was made for either nonuser or federal contributions to the highway program.<sup>3</sup>

There are two widely held views concerning the assignment of relative tax loads to users of various types and sizes of vehicles. The first position is that relative financial responsibility should be based on the comparative benefits which operators of different types and sizes of vehicles receive from the use of roads and streets. The second view is that such responsibility should be distributed, rather, on the basis of the comparative expense of providing highway service to users of different types and sizes of vehicles. The first of these two concepts has been the basis for several approaches to the task of devising a measuring stick for the quantitative assignments: relative operating costs, differential benefits, standard costs, and gross ton-mileage. The second concept has led to incremental costs analysis as a means of finding the expense occasioned by each type and size of vehicle. There are two quantitative attacks on the problem which appear to involve elements of both theories: the cost function and the space-time solutions.

Of the specific solutions to the problem of distributing highway expenditure responsibility among operators of vari-

<sup>3</sup> This is the first major step toward avoiding distortion by determining the assignment of relative responsibility in a manner independent of the method of financing.



ous types and sizes of vehicle according to the relative benefits from highway use, the assignment on the basis of gross ton-mileage is the most popular. It is the easiest to apply, both because of the availability of data and of its arithmetical simplicity. Under this plan, average annual ton-miles of operation—the product of aggregate weight and mileage traveled—is the measure of relative benefit. Thus, a vehicle which weighs 40,000 pounds with its load is assigned ten times as much expenditure responsibility as another vehicle traveling the same distance which weighs only 4,000 pounds with its load. This method of assignment, which was employed in the Kentucky study for comparative purposes,<sup>4</sup> is subject to objection on the ground that it treats quantities as homogeneous which are known to be nonhomogeneous, e.g., ordinary passenger automobiles and their loads and tractor-semi-trailer combinations and theirs. But some authorities regard this method as the only practicable basis for assigning relative expenditure responsibility.

For those persons who accept the view that the proper logical basis for the assignment of expenditure responsibility among types and sizes of vehicles is the cost each class occasions in providing highway service, there is general acceptance of the incremental solution as the best available. Therefore, in Kentucky this attack on the assignment of financial responsibility was accepted as the basis for a distribution of responsibility

consistent with the "cost-of-service" theory. This decision did not obscure the researchers' awareness of real difficulties in the application of the incremental analysis—difficulties due largely to the basic assumptions.

The authors of the Kentucky study found 34 clearly identified design systems for rural and urban highways. They undertook to reduce the number of systems because (a) despite the availability of relatively good traffic data, they did not know enough about traffic to justify so many, and (b) they found the computation task for 34 systems too formidable. Aside from the interstate highway system, the design standards differ only slightly for the various systems having similar traffic density, and it was found feasible to employ but eight classes of roads and streets for purposes of computation.<sup>5</sup>

Highway expenditures were classified. Those attributable to vehicle travel and weight were assigned according to separate indexes of increments depending on whether they were for grading and drainage, for base and surface, or for structures. Those attributable to vehicle travel only, e.g., right-of-way acquisition and traffic control, were assigned according to vehicle mileage on the system. Those attributable to neither travel nor weight, such as landscaping and certain administrative overhead, were assigned to all vehicles indis-

<sup>4</sup> The Kentucky study introduced a refinement not usual in such studies: The ton-mile computation in the Blue Grass State was made system by system, as were the computations for the incremental study. This means that the data for each of the eight systems were treated separately and then aggregated. (See the second textual paragraph following.) Some results of the ton-mile analysis and synthesis will be examined at a later point.

<sup>5</sup> Six groups are based on traffic volume (0-99, 100-399, 400-999, 1,000-1,999, 2,000-2,999, and 3,000 or more vehicles per day). The other two groups are composed of 2-lane interstate and 4-lane interstate highways, respectively. This and some other technicalities which involve significant departures from tested methodology have been developed at greater length in "Initial Problems Confronted in the Kentucky Incremental-Cost Study," *Highway Research Board Bulletin* 121, 1956, pp. 8 ff. and in an unpublished paper, "Methodology of the Kentucky Incremental Analysis," presented at the annual (See next page)

criminally. The increments were determined separately for new construction, for resurfacing and widening, and for resurfacing alone.<sup>6</sup>

Vehicles were grouped according to vehicle type and vehicle gross weight. Axle loads were distributed into such groups and were combined with estimated traffic to establish the number of axle-miles of each weight that the roads must carry per year. The expenditures treated incrementally were distributed among different types of vehicles and weight groups on the basis of the number of axles and the incremental cost indexes. Those expenditures not treated incrementally were assigned to the different registration classes on the basis of vehicle-miles of travel or proportionately to all vehicles.

Since \$160 million—the average annual expenditure requirements on highways—was the cost figure employed for the incremental solution, it was necessary to obtain the expenditure responsibility assigned to each vehicle class as a percentage of the total expenditures. After federal aid and nonuser charges were deducted from the total, the percentages were used to obtain the users' share by vehicle class. The class assignments were subdivided into responsibility of Kentucky-registered vehicles and responsibility of vehicles registered in other states (foreign vehicles). Dividing the share assigned to Kentucky vehicles by the estimated number of Kentucky-registered vehicles in 1965 in each group yielded the expenditure re-

sponsibility per Kentucky-registered vehicle. By dividing the domestic and foreign group assignment by the axle-miles of travel for each group, the assignment per axle-mile was secured. This measure provided a basis for comparing domestic and foreign vehicle responsibility.<sup>7</sup>

The comparative results of the gross ton-mile and the incremental solutions to the problem of distributing Kentucky highway-user expenditure responsibility, presented in Table 1, are what might have been expected. For the smaller sizes of vehicles, the assigned responsibility is much higher if computed by the incremental method. For larger sizes, the contrary is true.<sup>8</sup> As compared with the gross ton-mile solution, the incremental method yields a sort of maximum responsibility for the smaller vehicles—and thus a minimum for larger vehicles.

The incremental solution has a sounder theoretical basis and more widespread acceptance than does the gross ton-mile solution. Most of the results of the Kentucky expenditure responsibility assignments, therefore, can be considered in the light of the former approach. Certain observations may be based on a

<sup>7</sup> The innovations (a) of finding incremental relationships before eliminating nonuser charges and federal aid and then applying the proportions so established to the amount to be financed by state and local user taxes and (b) of finding incremental values separately for foreign and state-registered vehicles will be apparent to students of the problem. These procedures, especially the former, seem to be among the most significant methodological refinements made in this study. The former is the second major device for keeping the increments entirely independent of the method of financing employed.

<sup>8</sup> Table 1 shows expenditure responsibility assignments on a per registered vehicle basis (but excluding traffic by foreign vehicles). The known biases in the Kentucky version of the incremental solution tend consistently toward a relatively higher assignment to the smaller vehicles—and, of course, a relatively lower assignment to the larger vehicles and combinations.

Highway Research Board meeting in January, 1956, by Virgil L. Christian.

<sup>6</sup> This departure from usual incremental methodology was suggested in Federal Coordinator of Transportation, "Public Aids to Motor Transportation," *Public Aids to Transportation* (Washington: Government Printing Office, 1940). The procedure appears urgent in view of highway conditions in Kentucky.

comparison of the tax yields under 1955 laws, as estimated for 1965, with the incremental assignments estimated for the same year. The Kentucky study showed that foreign vehicle operators would pay less than their relative responsibility, largely because they pay little more than fuel taxes in most cases. Domestic passenger vehicles, exclusive of buses, were shown to be overtaxed as measured by assigned responsibility. Farm trucks and the largest legally authorized four- and five-axle tractor semi-trailer combinations would fall considerably short of meeting their incremental responsibility.<sup>9</sup>

Certain problem areas involved in the Kentucky division-of-costs study are so well-defined that they require comment. (1) The recent Highway Research Board studies in Maryland and, especially, Idaho seem to suggest that, for purposes of incremental analysis of pavement construction costs, the American Association of State Highway Officials' standard, "one single axle-load of 18,000 pounds = a tandem axle-load of 32,000 pounds," should be rewritten to read roughly, "one single axle-load of 18,000 pounds = a tandem axle-load of 27,000 pounds." The Kentucky study, on the other hand, treats each axle-load, whether single or in tandem arrangement, as being like each other axle-load.<sup>10</sup> (2) The traffic data in Ken-

tucky provide an inadequate basis for determining whether differential assignment of expenditure responsibility to for-hire vehicle operators on grounds of more or less than average mileage is justified. Perhaps a special study would be in order. (3) Because of differences in the character of traffic in urban areas, it is possible that city data ought to be examined as special incremental systems. This was not seriously considered in the Kentucky study because of historic traffic data treatment. A subsequent study might well take account of this limitation.

#### *Tax Planning*

The incremental expenditure assignments, adjusted to reflect axle arrangements, provided the basis for tax planning. A comparison of 1965 expenditure assignments with estimated 1965 tax contributions (assuming the laws of 1955) clearly indicates, shown graphically in Chart 3, that serious inequities would occur. The tax plans should be designed to eliminate at least the major injustices. Fiscal adequacy is another ingredient of an acceptable tax system. In the event highway prices rise by 3 per cent annually, a realistic assumption, 1955 user tax rates would have to be raised an average of approximately 41 per cent if the program is to be completed by 1976; and still the work could not be done on a pay-as-you-go basis according to the recommended expenditure schedule. Considerations in addition to equity and adequacy received attention in the tax planning. For example, administrative and compliance problems are quite important, inasmuch as a tax which is

<sup>9</sup> With respect to annual miles traveled by private and for-hire vehicles, the Kentucky traffic information revealed no significant differences. Thus, under the gross ton-mile method, the expenditure responsibility for private and for-hire vehicles was the same. Under the incremental solution, however, for-hire vehicles were charged with certain administrative costs, such as the cost of rate and schedule making, which do not apply to private vehicles. Thus, under the incremental method, the expenditure responsibility of for-hire vehicles is slightly greater than of private vehicles.

<sup>10</sup> In tax planning, a study area attacked later, some effort has been made to correct for this crudity.

Obviously, the incremental study itself suffers from the failure to build the refinement into the incremental treatment.

theoretically equitable may be quite unjust if it is poorly administered. Another important feature is that taxes should interfere as little as possible with motor vehicle travel.

Implicit in each of the three tax plans

presented is the assumption that motor-fuel taxation, including the gasoline use tax applicable to heavier vehicles with interstate travel, is the major tax measure. In addition, it was assumed that the several miscellaneous user taxes and

TABLE 1  
ESTIMATED 1965 EXPENDITURE RESPONSIBILITY OF KENTUCKY REGISTERED VEHICLES  
AND THE ESTIMATED AMOUNT OF USER TAXES UNDER 1955 TAX LAWS

Vehicle Type by Weight	Responsibility per Vehicle			User Taxes per Vehicle	
	Gross Ton-Mile Method	Incremental Method		Private	For-Hire
		Private	For-Hire		
Passenger cars .....	\$ 26	\$ 40	...	\$ 48	...
Farm trucks					
Panel and pickup					
0-22,000 .....	51	59	...	49	...
2-axle dual tired					
0-22,000 .....	126	58	...	56	...
Nonfarm trucks					
Panel and pickup					
0- 5,000 .....	45	58	\$ 62	66	\$ 78
5,001- 8,000 .....	74	60	65	84	104
8,001-10,000 .....	94	61	65	94	129
10,001 and over .....	116	63	67	105	143
2-axle dual tired					
0- 5,000 .....	78	101	...	98	110
5,001- 8,000 .....	130	105	112	121	141
8,001-10,000 .....	166	107	114	136	171
10,001-12,000 .....	202	125	132	150	188
12,001-14,000 .....	240	136	143	165	207
14,001-16,000 .....	279	148	155	178	225
16,001-18,000 .....	319	155	162	191	245
18,001-21,000 .....	379	170	177	254	280
21,001-24,000 .....	444	193	200	273	319
24,001-27,000 .....	559	223	231	296	405
3-axle single unit					
18,000 and under .....	125	118	123	145	199
18,001-21,000 .....	187	158	164	235	261
21,001-24,000 .....	270	215	223	285	331
24,001-27,000 .....	367	274	284	335	404
27,001-30,000 .....	478	335	347	394	478
30,001-33,000 .....	609	419	432	452	554
33,001-36,000 .....	742	503	518	514	636
36,001-39,000 .....	916	596	613	591	739
39,001-42,000 .....	1,116	690	709	694	855
3-axle semi-trailer combination					
21,000 and under .....	149	130	135	214	240
21,001-24,000 .....	170	135	141	226	272
24,001-27,000 .....	192	148	154	233	302
27,001-30,000 .....	293	209	217	297	381
30,001-33,000 .....	411	276	286	359	461
33,001-36,000 .....	548	378	390	430	552
36,001-39,000 .....	693	465	479	505	653
39,001-42,000 .....	862	571	587	604	765
42,001 and over .....	1,067	659	677	680	841

TABLE I—Continued

Vehicle Type by Weight	Responsibility per Vehicle			User Taxes per Vehicle	
	Gross Ton-Mile Method	Incremental Method		Private	For-Hire
		Private	For-Hire		
4-axle semi-trailer combination					
27,000 and under .....	265	196	204	288	357
27,001-30,000 .....	407	312	322	377	461
30,001-33,000 .....	617	472	486	481	583
33,001-36,000 .....	763	570	587	564	686
36,001-39,000 .....	961	719	739	666	814
39,001-42,000 .....	1,187	964	987	794	955
42,001-46,000 .....	1,362	1,045	1,068	846	1,007
46,001-50,000 .....	1,544	1,255	1,280	902	1,063
50,001 and over .....	1,826	1,458	1,484	978	1,139
5-ax'e semi-trailer combination .....	1,743	1,661	1,686	978	1,139
Buses					
School .....	129	54	...	84	...
Heavy intercity .....	1,373	...	1,208	...	1,342
Light intercity .....	429	...	419	...	323
City .....	332	...	286	...	414

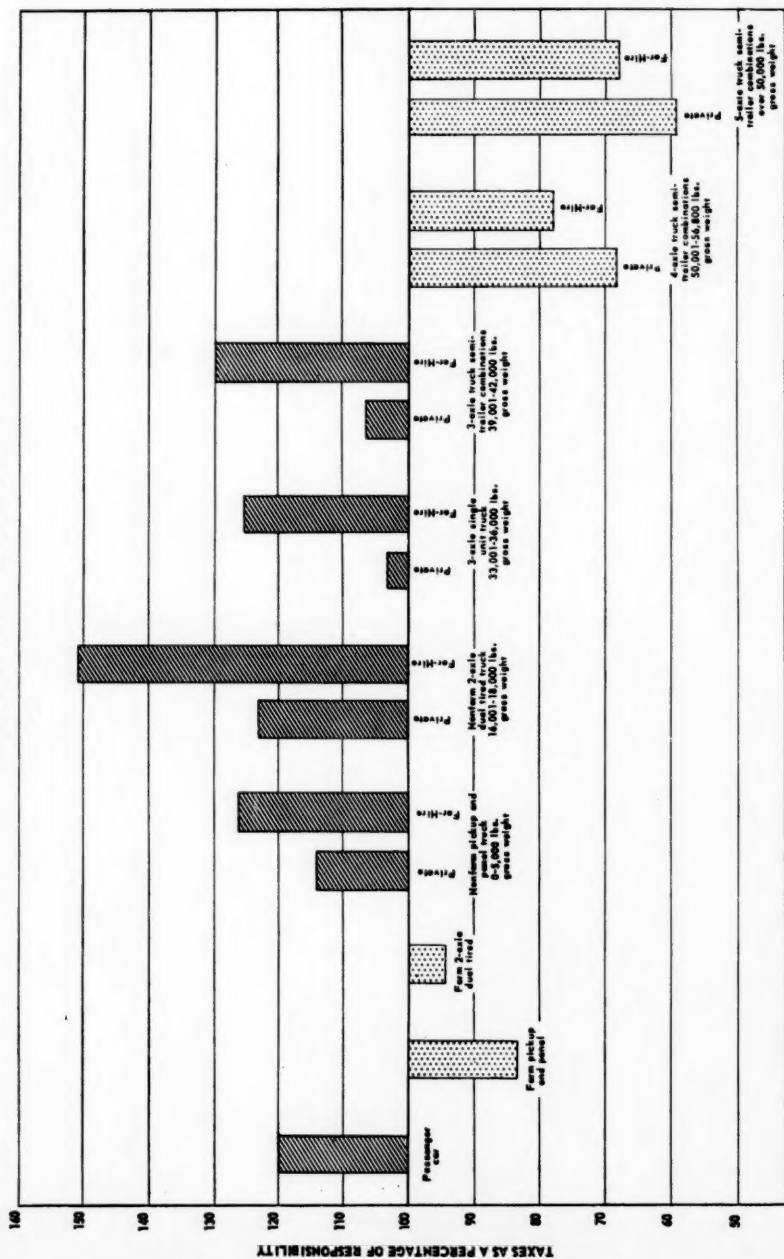
fees, such as local parking meter receipts and drivers' and chauffeurs' licenses, will be continued. Available evidence suggests that a diesel fuel tax rate differential of approximately 50 per cent is necessary to eliminate discriminations among users. The added responsibility of for-hire carriers would be recouped by requiring a utility certificate. Certificate rates would be slightly graduated by type and size of vehicle.

The authors developed three tax plans using various combinations of the three major types of highway-user taxes: motor-fuel, registration, and third-structure. The first plan employed the fuel and a registration tax with an apportionment feature for larger vehicles. The fuel tax, if the rate (nearest whole cent per gallon) exceeded the current rate of \$0.07 per gallon, would result in contributions in excess of incremental expenditure responsibility for vehicles of the lower weight groups. Therefore, the current rate was used. Under this plan the bulk of the difference between responsibility and fuel taxes at their

present level would come from the basic registration tax. Registration tax rates would range from \$3.50 for passenger cars to around \$1,500 for the heaviest trucks and buses. However, the tax on all nonfarm trucks and buses having a gross weight in excess of 18,000 pounds with interstate travel would be determined by that fraction of the basic rate which their travel in Kentucky is of their total travel in all states. This apportionment privilege would also be available to operators of two or more nonfarm trucks or buses with gross weight 18,000 pounds or less. Special licensing provisions for fleets would facilitate the most economical use of such vehicles. An alternative per-trip tax of \$10 per trip would be available to users making only occasional trips. Thus, all vehicles with gross weights in excess of 18,000 pounds would be required to present evidence of paying either the registration or per-trip fee. Compliance with the apportioned registration tax may necessitate the payment of a tentative tax liability at the beginning

CHART 3

ESTIMATED USER TAXES UNDER 1955 TAX LAWS COMPARED WITH INCREMENTAL  
EXPENDITURE RESPONSIBILITY, FOR SELECTED TYPES AND WEIGHTS OF PRIVATELY  
OWNED KENTUCKY REGISTERED VEHICLES, 1965





of the year based on estimated travel and a final settlement at the end of the year based on actual travel.

Another plan employs the motor-fuel tax, a registration tax for light weight vehicles, and a nominal registration tax plus a weight-distance type tax for heavy vehicles, supplemented by the miscellaneous state and local taxes and fees. Under this plan, the fuel tax would be identical with that of the first plan; so would the registration tax for light weight vehicles. Operators of the heavy domestic types of trucks and buses would pay a registration tax for identification purposes which would defray a nominal proportion of their expenditure assignment. The weight-distance tax would absorb the difference between their expenditure responsibility and their motor-fuel and other tax contributions. The weight-distance tax would apply to both foreign and domestic vehicles. Tax rates would range from \$0.01 to \$0.28 per 100 axle-miles for trucks. The heaviest intercity buses would pay a nominal registration tax and a weight-distance tax computed at \$0.43 per 100 axle-miles.

The third plan differs from the other two in that the motor-fuel and miscellaneous taxes are supplemented by a \$0.01 per gallon motor-fuel surtax, a registration tax, and a weight-distance tax on vehicles of the heaviest classes. The fuel surtax would apply to foreign and domestic vehicles and combinations having three or more axles and gross weights in excess of 18,000 pounds. The surtax would be administered in conjunction with the present fuel use tax.

Under the third plan, the basic registration tax rates would range from \$3.50 for passenger cars to \$90 for the heaviest, three-axle single unit trucks,

none of which would be subject to the weight-distance tax, and to \$75 for the heaviest four- and five-axle tractor semi-trailer combinations, which would be subject to the weight-distance tax. The weight-distance tax rates range from \$0.02 per 100 axle-miles for a four-axle tractor semi-trailer combination with a gross weight of 30,001 to 33,000 pounds to \$0.22 per 100 axle-miles for a five-axle tractor semi-trailer combination of more than 50,000 pounds gross weight.

Revenue-wise, the motor-fuel tax would account for about 83 per cent of the total under each of the three plans, registration and weight-distance taxes roughly 12 per cent, and miscellaneous taxes and fees about 5 per cent.

The study underscores the need for policing motor vehicle size and weight limit laws. Inasmuch as excessive axle weights damage pavements, the proposed penalty provisions call for the use of a penalty schedule, with the penalty directly related to the weight and arrangement of axles. The study illustrated this point by presenting a schedule roughly correlated with relationships between single and tandem axles found in recent engineering tests. That is, for each 2,000 pound increase in excess weight of a single axle, the penalty approximately doubles. Tandem axles are treated as being approximately equal to a single axle with a gross weight of two-thirds as much. For most effective size and weight law administration, local conditions suggest that the state rely on administrative-type penalties, supplemented by criminal provisions.

Because the incremental assignments were based on traffic and expenditure projections, the research emphasizes the need for re-evaluating the tax plans should traffic patterns or expenditure re-

quirements change significantly. An adjustment in the level of federal aid or nonuser contributions would merit an adjustment in the level of taxation, but the *relationship* among users may not be directly affected and therefore may need little or no adjustment.

#### *Credit Financing*

In addition to formulating tax plans, the Kentucky study reflects an attempt to determine the probable effects of several alternative expenditure programs involving the use of various amounts of credit financing. If highway prices remain constant, revenues, though adequate in total, would not be sufficient to follow the recommended pattern of expenditures which contemplates the completion of almost two-thirds of the program in the first ten years. If, however, highway prices rise as anticipated, both a tax increase and the use of credit may be desirable. Of more immediate concern was a proposal, submitted to the voters of Kentucky, which would allow the state to borrow \$100 million to be used to match federal aid.<sup>11</sup>

Under the assumption that highway costs remain constant, four different expenditure programs were examined and compared with a program involving no credit financing. In two programs the amount of bonds was limited to \$100 million. The third program involved the use of \$675 million of bonds, the amount necessary to follow the schedule recommended by the ASF. In the fourth program, expenditures are made for maximum acceleration limited only by the estimated capacity of the state and local governments and the highway construction industry. This program would reach the peak in the fifth year when expenditures almost 2.5

times as large as recent annual expenditures would be made. The issuance of \$790 million of bonds would be required for this program.

All bonds are assumed to be retired serially from road fund revenues, according to various schedules of repayment. The bonds would be state instruments backed by the full faith and credit of the Commonwealth and would be callable after ten years from the date of issuance. The average interest rate was estimated to be  $2\frac{3}{8}$  per cent for ten to 20-year repayment.

The authors compared the interest cost plus the costs of additional replacements, administration, and maintenance of each of the programs with the estimated savings that would result from acceleration through the use of credit. This, of course, could not be done in precise fashion because of the inability to measure nonmonetary savings and because some of the monetary savings are extremely difficult to estimate. However, it appears that any of the four programs could be justified, because savings to the state and local governments and to motorists would undoubtedly more than offset the additional costs in each case. Take the case of the maximum acceleration program, which involves issuing \$790 million of bonds. These bonds are assumed to be issued in the first ten years of the program, and revenue projections indicate that they could be retired within 15 years of the date of issuance. At an interest rate of 2.5 per cent, the total interest cost would approximate \$250 million. The cost of additional replacements, administration, and maintenance that would be required because of the earlier completion of the facilities would be relatively insignificant. Accelerating the program by issuing these bonds, how-

<sup>11</sup> This proposal was approved by an overwhelming margin in November, 1956.

ever, would result in considerable savings both to the state and to motorists. In the first place, stopgap work, i.e. work on facilities which are less adequate than the situation actually requires, could be reduced, and between \$50 million and \$75 million saved thereby. Secondly, according to the recent report by the President's Advisory Committee on A National Highway Program, vehicle operating costs would be reduced as much as a penny a mile if the highways of the nation were brought to an adequate standard.<sup>12</sup> Assuming that this is true of Kentucky highways, around \$100 million a year could be saved. By using \$790 million of bonds, the Kentucky highway system could be brought to an adequate standard several years earlier than would be the case without the use of credit. Thirdly, the time loss of commercial vehicles due to inadequate highways in Kentucky amounts to an estimated \$20 million a year. Finally, there would be advantages that would result from speeding up the program that are extremely difficult, if not impossible, to measure with a reasonable degree of accuracy. These include savings resulting from reduction in highway accidents and fatalities associated with adequate facilities, time savings of non-commercial vehicles, and additional state tax revenue as a consequence of more extensive use of modern roads and streets. Furthermore, if the realistic assumption that highway costs will increase by an average of 3 per cent

a year is substituted for the assumption that these costs will remain constant, another type of saving becomes apparent. If work can be done early in the program, it can undoubtedly be done at a considerably lower cost than if it is done later.

The above estimates of savings that would be obtained are admittedly far from precise, but it appears that these savings clearly would more than offset the interest cost plus other minor additional costs.<sup>13</sup>

If highway costs do rise by an average of 3 per cent annually, present laws plus federal aid would produce only 70 per cent of the revenue that would be needed to complete the improvement program in 20 years. About \$1,250 million of bonds would be required to complete the remaining 30 per cent of the program, and these bonds would be outstanding at the end of the 20-year period. It would not be feasible to issue and repay such a large amount of bonds nor to pay interest on them amounting to about \$30 million a year. Thus, a realistic look at the highway finance situation in Kentucky clearly indicates—unless the experts are dead wrong about the trend of highway costs—that, if Kentuckians choose to eradicate their road and street inadequacies during the next 20 years, an increase in user taxation is necessary.

<sup>13</sup> Notwithstanding the financial justification, it might be argued that such a greatly accelerated program would force up contract prices, disrupt traffic unduly, and produce a pronounced lull in construction activity in the latter part of the 20-year program that might disrupt both the staff of the department of highways and the highway construction organization.

<sup>12</sup> President's Advisory Committee on A National Highway Program, *A Ten-Year National Highway Program—A Report to the President* (Washington: Government Printing Office, 1955).

# TAXES AND STANDARD OF LIVING IN THE U.S.S.R.: POSTWAR DEVELOPMENTS<sup>1</sup>

FRANKLYN D. HOLZMAN \*

## I

THE standard of living of the Soviet people is determined directly by the ruling hierarchy in the U.S.S.R. Annually, a decision is made regarding the distribution of the productive forces of the nation (labor, machinery, natural resources) among three broad categories of end-uses: personal consumption by the population, investment in more machinery and equipment, and production for military use. To a very large extent this decision is implemented directly by the planners. The manager of a state enterprise producing steel, for example, is not free to sell to whom-ever he pleases. Quite the contrary. He has orders which specify his customers and how much is to be shipped to each. Likewise, users of steel are given rationing orders which tell them how much steel they may purchase and from whom. This procedure has been followed in the postwar period for the 1500 or so most important industrial products.<sup>2</sup> The amount and allocation

of agricultural goods is determined similarly, though not quite so firmly, by the amount of resources the state is willing to invest in agriculture, by the direct requisition of a huge proportion of total produce from the collective farms and farmers, and by the selective distribution of that produce to the people, for export, for stockpiles, etc. Under such a system, it is quite easy for the state to raise (lower) the standard of living by rationing more (less) steel, coal, oil, and other resources into enterprises producing consumers' goods and less (more) into those producing machinery and equipment and into the military establishment. This system, used by the Soviets in both war and peace, is not unlike that which was in operation in the United States and other western nations during World War II.

It is often said that the Soviet Union enforces a low standard of living upon the Soviet people by levying very high taxes. This statement is clearly incorrect for, as we have just indicated, the low standard of living is achieved by a system of direct resource rationing. This does not mean, however, that taxes serve no function in the Soviet Union. The Soviet Union is a money economy and while money plays an unimportant role, subordinate to rationing, in the purchase and sale of most industrial

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<sup>1</sup> I am indebted to Gregory Grossman and Nancy Nimitz for critical comments. For further discussion of some of the ideas in Parts I and II, see this writer's: *Soviet Taxation: The Fiscal and Monetary Problems of a Planned Economy*, Cambridge, 1955; and "The Soviet Budget, 1928-1952," *National Tax Journal*, Sept. 1953.

<sup>2</sup> E. Lokshin, "Voprosy Planirovaniia material'no-tekhnicheskogo snabzheniia narodnogo khoziaistvo SSSR" (Problems of Planning material-technical supplies of the national economy), *Planovoe khoziaistvo*, 1950: 2, p. 46. It is worth noting that over the past few years measures have been taken to decentralize planning. Along these lines it is reported that the

number of industrial products directly allocated has been reduced by two-thirds. This still leaves a substantial number (500) which do not enter the market, however. Cf. R. W. Campbell, "Some Recent Changes in Soviet Economic Policy," *World Politics*, October, 1956, p. 4.

products, it is of major importance in the consumers' goods and labor markets. It is established Soviet policy to distribute consumers' goods through the market mechanism though rationing was resorted to in those periods of great economic stress, the early 'thirties and World War II. The amount of goods which can be purchased by any individual is determined by his current and accumulated monetary earnings. The labor market, while somewhat hobbled by restrictive measures—some of which have recently been relaxed—is nevertheless essentially a free market in which workers choose occupations and jobs with an eye to relative wage and salary differentials. This is not true of forced labor, of course, but forced labor has never comprised more than a small percentage of the total labor force.<sup>3</sup>

The role of taxes in the Soviet economy is to keep the money flows and commodity flows in the consumers' goods markets in alignment. Potential lack of alignment occurs because the state claims such a large part of the national output. For purposes of illustration let us assume that the cost of the national output is equal to the sum of wage and other earnings of the industrial labor force plus the peasants' income. (While this assumption is not strictly true, it is sufficiently accurate to serve our purposes here.) This is true because the major costs in the production of the national output are returns in one form or another to individuals. This equality means that the Soviet people, if they spent their entire annual incomes, could just buy back the total quantity of goods and services

produced if these goods and services were priced at cost. But suppose the government claims half of the national output, as the Soviet government does! Initially, under these circumstances, the people would have in their pockets twice as much money as there are goods available to them (at cost-price) whereas the government would have half the output available to them but no money with which to purchase it. Two major courses of action (or combinations thereof) are open to the government. They can either print enough money to purchase their half of the output, leaving the people with excess cash in their pockets; or they can tax away half of personal income thereby providing themselves with just the amount of money needed to buy their share of the product and leaving the people with only enough money to purchase the remainder. The latter course, to tax, would keep the money and commodity flows in perfect alignment, the former would not. Failure to tax would have the following unhappy repercussions on the economy.

(1) If prices were controlled, the consumer would accumulate more cash than he could spend. This would reduce the incentive to work: some workers would withdraw from the labor force (especially older people, working wives, etc.), there would be reduced effort on the job, more absenteeism and lateness, etc.

(2) If prices were controlled, rationing would, in all probability, have to be instituted. Rationing is costly to operate and provides for a lower level of satisfaction than free market distribution of the same volume of goods. Furthermore, price controls and rationing inevitably promote the growth of black markets and other socially un-

<sup>3</sup> We are concerned here with the economic significance, only, of forced labor. The moral significance of the system of forced labor is, of course, enormous.



desirable institutions.

(3) If price controls and rationing were not introduced, inflation would result as consumers bid up prices in an attempt to spend their incomes and buy as much as possible. It is well-established that open inflation is the most inequitable way to cut back the standard of living of a population: typically the prices of necessities rise the highest with the result that the poorer stratum of the population suffers most. Rising prices, furthermore, tend to divert people from productive to speculative activities since the latter become very profitable. This reduces further the national output and the amount of goods available to the population.

To restate the role of Soviet taxes: their function is not to implement a lower standard of living but rather to prevent inflation (repressed or open) and its evils once a lower standard of living has been implemented by direct governmental controls.

## II

The state has a choice between two basic types of taxes: it can take excess cash away from the population before it is spent, i.e., by direct or income taxation; or it can levy sales or commodity taxes raising the prices of consumers' goods. The state is not indifferent as between these two methods of taxation and, as we shall see below, has relied predominantly on price-increasing taxes for the past 25 years. This is, of course, quite the opposite of the situation in the United States, Great Britain, and several other western nations which prefer income to sales taxation. Soviet preference for sales taxation is not to be explained on ideological grounds. In fact, the use of this form of taxation has proved embarrassing to Soviet econ-

omists and they have gone to ridiculous lengths to explain it away. Marxist writers consistently attacked such taxes (and correctly so) as socially inequitable and regressive (i.e., falling with heaviest weight on the poorest people). Other bad associations stem from the fact that the Czarist governments relied heavily on highly regressive excise taxes, particularly on alcoholic beverages, for the bulk of their revenue. That the Soviets levy a heavy sales tax despite this "ideological" bias attests to its superiority for their purposes.

Why is the sales tax superior to the income tax for Soviet purposes? At least four considerations are suggested. First there is the administrative advantage of collecting the bulk of the revenue from the relatively small number of state industrial enterprises as opposed to some 30 or 40 million households. This was particularly important in the 'twenties and 'thirties when so many people were illiterate and not competent to calculate an income tax and when the peasants had not been completely collectivized and tax-evasion was easy.

Second, the sales taxes which are levied in the Soviet Union are essentially "hidden" taxes. In the case of many commodities, the taxes are levied at an early stage of the production process and the retailer and consumer never know how much tax they are paying—they only know that prices are high. The state further attempts to obscure the picture by insisting that the sales taxes are not taxes on the consumer but simply levies which skim off into the budget the "surplus product" realized within state industry. The importance of such devices for softening the impact of taxation and the discontent which it might arouse can be easily



understood where more than half of the average person's income goes back to the state each year.

Third, an income tax of a size necessary to meet Soviet requirements would have a disastrous impact on work incentives. In the early 'thirties when the present tax system was instituted the Soviets were very concerned over the *relative* equality of wages and the bad effect this was having on work incentives. In 1931 Stalin made a famous speech calling for greater differentiation of wages to encourage effort.<sup>4</sup> To have levied a progressive income tax averaging more than 50 per cent of personal income would have caused take-home pay under these circumstances to be no more unequal than before. A non-progressive hidden sales tax was much more suitable for use in conjunction with the new wage policy.

Finally, in the Soviet Union the state rather than private enterprise manages the consumers' goods markets. It is the state's job to lower the price of commodity A if it is not selling well, to raise commodity B's price if it is selling out too rapidly, and so on. The flexibility of price required for this purpose is facilitated by the existence of large sales taxes which can be adjusted up or down, as the case may be.

Three major types of price-raising taxes are employed by the Soviets. The most important by far is the famous turnover tax which is a traditional-type sales or excise tax. This tax is levied at present almost exclusively on consumers' goods and is highly differentiated, with rates ranging from 1 per cent of selling price on some commodities to as much as 90 per cent on others.<sup>5</sup> The tax on

profits of state enterprises or profits tax is next in importance to the turnover tax.<sup>6</sup> Those profits of state enterprises which are left after the sums earmarked for investment and for the profit-sharing or director's fund have been spent, are simply transferred automatically into the state budget.<sup>7</sup> A payroll tax, the so-called social insurance markup, is the third price-increasing tax in the Soviet arsenal. This tax is similar to our own social security tax and amounts, on an average, to about 5 per cent of the industrial payroll.

In spite of the advantages of commodity taxation under Soviet conditions, the people are also required to pay an income tax. The income tax is not very important fiscally. The only significant function it seems to serve is to discourage private practice by professionals (doctors, lawyers, etc.) and other so-called "non-worker" elements in the urban population (e.g., priests, private shopkeepers). These groups pay a discriminatorily high tax which reaches 55 and 65 per cent, respectively, on incomes in excess of 70,000 rubles whereas workers and salaried employees

mary in the West, the tax rates appear much higher, of course. A 50 per cent tax becomes one of 100 per cent; a 90 per cent tax becomes one of 900 per cent.

<sup>6</sup> A tax on the profits of private enterprises is usually considered to be a direct tax more akin to an income tax than to a sales tax. In the Soviet economy, however, the enterprises are owned by the state; the effect of the profits tax—or of total profits—on the non-government sector, is simply to raise the price of goods to the consumer—the same effect as the sales tax.

The reasons for Soviet use of both turnover and profits taxes are discussed in *Soviet Taxation*, Chapter 4.

<sup>7</sup> The retained profits earmarked for investment might well be classified as taxes as the previous footnote suggests. Not only do they serve to raise prices to the consumer, they also are used for the same purpose as a large portion of budgeted funds (i.e., a goodly portion of budget expenditures is for investment in state industries).

<sup>4</sup> Cf. J. Stalin, *Problems of Leninism*, Moscow, 1940, pp. 371-373.

<sup>5</sup> Looked upon as a markup over cost, as is custo-

pay according to a schedule which reaches a maximum rate of only 13 per cent on income over 12,000 rubles. In the case of the rural population, the tax (called agricultural tax) discriminates against the peasant who has not joined the collective farm: he pays at a rate double that levied on the collective farmer.

Sales of government bonds to the population are, in effect, another form of direct tax on the Soviet population. Considerable social pressure is brought to bear on the public to subscribe from two to four weeks wages a year, and the subscriptions are withheld from wages every month just as in the case of the income tax. Pressure is required to sell the bonds for several reasons: the people are too poor to voluntarily subscribe such a large portion of their income; the bonds are inconvertible until maturity (20 years), unless the subscriber happens to win an interest-lottery prize;<sup>8</sup> until 1948, consumers' goods prices skyrocketed annually, thus reducing the *real* value of a bond at maturity to only a fraction of its original value; a series of forced bond-conversions (1930, 1936, 1938) lowered interest rates and extended the dates at which bonds were to be paid off; finally the Currency Reform of 1947 reduced the value of all outstanding bonds by two-thirds (exchanging one new for three old bonds). Under these circumstances no one in the Soviet Union would have bought bonds unless forced to—as is the case with taxes.<sup>9</sup>

<sup>8</sup> No interest is paid as such but instead annual lotteries are held in which the total interest payable is won by 1 or 2 per cent of the subscribers.

<sup>9</sup> This by no means exhausts the list of Soviet taxes. However, the rest are fiscally unimportant. For details, see *Soviet Taxation*, Chapter 8.

### III

The major sources of budget revenue for the postwar period are set forth in Table 1 below. The predominance of price-increasing taxes is obvious. The turnover tax by itself regularly brings in between 40 and 60 per cent of total revenue. The turnover, profits, and payroll taxes together typically account for from 60 to 70 per cent of total revenues. Direct taxes on the population, on the other hand, never total as much as 10 per cent of receipts, and sales of bonds tend to bring in still less revenue. We should perhaps say again that the Soviet press vigorously affirms that the very minor income taxes are virtually the only taxes levied on the population; that the price-increasing taxes are levied not on the people but on state enterprises and represent productivity gains; and that the bonds are purchased voluntarily and indicate patriotic support of the government by the people.

The turnover tax is levied almost exclusively on goods sold to the population through state and cooperative retail stores and is paid by the population in the form of high prices. The tremendous magnitude of this tax can be better visualized by indicating what percentage it constitutes of the total value of this retail trade. The data are presented in Table II.

The figures show that in 1950, for example, an average of 65 out of every 100 rubles spent in state and cooperative stores was tax and only 35 rubles was used to defray costs of production and to provide a profit. The sharp decline in the average rate of tax from 1947 to 1956 indicates, in part, the relative decline in production for investment and

TABLE 1  
SOVIET BUDGET RECEIPTS, 1946-1956  
(Billions of rubles)

	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Total budget receipts .....	325.4	386.2	410.5	437.0	422.8	470.3	497.7	539.8	558.6	564.3	583.0
Price-increasing taxes .....	219.0	277.1	290.7	305.8	296.1	317.2	327.3	337.1	333.0	371.7	387.4
Per cent of total .....	(67.3)	(71.8)	(70.8)	(70.0)	(70.0)	(67.4)	(65.8)	(62.4)	(59.6)	(65.9)	(66.4)
Turnover tax .....	190.9	239.9	247.3	245.5	236.1	247.8	246.9	243.6	224.3	242.4	258.1
Per cent of total .....	(58.7)	(62.1)	(60.2)	(56.2)	(55.8)	(52.7)	(49.7)	(45.1)	(40.2)	(43.0)	(44.3)
Profits tax .....	16.5	22.6	27.2	42.2	40.4	48.0	58.5	70.3	83.4	102.8	101.2
Per cent of total .....	(5.1)	(5.9)	(6.6)	(9.7)	(9.6)	(10.2)	(11.7)	(13.0)	(14.9)	(18.2)	(17.4)
Payroll tax .....	11.6	14.6	16.2	18.1	19.6	21.4	21.9	23.2	25.3	26.5*	28.1
Per cent of total .....	(3.6)	(3.9)	(3.9)	(4.2)	(4.6)	(4.5)	(4.4)	(4.3)	(4.5)	(4.7)	(4.8)
Direct taxes on population .....	22.7	28.0	33.1	33.7	35.8	42.9	47.4	46.1	46.4	48.4*	50.7
Per cent of total .....	(7.0)	(7.3)	(8.1)	(7.7)	(8.5)	(9.1)	(9.5)	(8.5)	(8.3)	(8.6)	(8.7)
Sales of Bonds to household .....	22.0	22.9	23.0	24.4	27.6	32.6	36.3	17.3	16.2	30.5*	13.9
Per cent of total .....	(6.5)	(5.9)	(5.6)	(5.6)	(6.5)	(7.0)	(7.3)	(3.2)	(2.9)	(5.4)	(2.4)

Sources: 1946-1950: All figures from *Soviet Taxation*, p. 222 except: turnover tax, 1947; profits tax, 1946; income taxes on population, 1948; payroll tax, 1946, 1947, 1949; sales of bonds to population, 1946-50. These are from K. N. Plotnikov, *Ocherki istorii budzheta Sovetskogo gosudarstva* (Studies in the History of the Soviet Budget), Moscow 1954, pp. 379, 398.

1951-1953: All figures from *Soviet Taxation*, p. 222 except: sales of bonds, 1951-53 and total receipts, 1953. These are from *Finansy SSSR*, 1956: 2, p. 20.

1954: All figures from *Finansy SSSR*, 1956: 2, p. 20.

1955-56: All figures from *Pravda*, Feb. 6, 1957 except the following planned figures (denoted by \*) for 1955: payroll tax, direct taxes on population, and sales of bonds to population. These are from *Finansy SSSR*, 1956: 2, p. 20.

Note: In addition to sales of bonds to population, a large part of the free reserves of the savings banks are also invested annually in bonds. Total bond sales for the years under discussion were: 1946-24.7, 1947-25.7, 1948-23.9, 1949-27.6, 1950-31.0, 1951-37.0, 1952-41.7, 1953-30.4, 1954-1955-not available, 1956-32.8. All figures from previously listed sources except 1950-1953 from *Bulletins on Soviet Economic Development* (Birmingham, Sept. 1956), Nos. 9-10, p. 56.

military uses and relative rise in the production of consumers' goods (see below); but it also represents in part a purely administrative shift from turnover to profits taxation as the figures in Table I clearly reveal<sup>10</sup> as well as the wholesale price reform of 1949.

#### IV

The Soviet level of consumption has risen every year since the end of World War II with the possible exceptions of 1954 and 1955. A first approximation

the farm sector produces a lot of food which is either consumed in kind or sold to the urban population on so-called collective farm or free markets; part of the increase in the volume of goods sold by state and cooperative stores has been at the expense of peasant consumption in kind and sales on the free market.<sup>11</sup> Thus the rise in consumption in the former has been paralleled in part by a decline in consumption in the latter.<sup>12</sup>

Other *rough* indicators of the post-war increase in standard of living are

TABLE II  
AVERAGE RATE OF TURNOVER TAXATION, 1947-1956

	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Value of state and coop retail trade (bn. rubles) . . . .	308.0	332.0	348.0	359.6	379.8	393.6	430.7	481.9	501.5	547.0
Turnover tax (bn. rubles) . .	239.9	247.3	245.5	236.1	247.8	246.9	243.6	224.3	242.4	258.1
Average rate of tax (per cent)	77.8	74.5	70.5	65.7	65.2	62.7	56.6	46.5	48.3	47.2

Sources: Turnover tax from Table 1. Retail trade turnover from *Narodnoe khoziaistvo SSSR*, p. 201; *Soviet Taxation*, p. 142 for estimates of 1947-49; 1956 from *Pravda*, January 31, 1957.

Sales of services, which have probably been increasing as a proportion of total consumption, are not included in retail trade turnover.

There are other difficulties with the data: (1) The years 1947 and 1948 may not be completely comparable with the rest of the period because of the changes which resulted from the Currency Reform of Dec. 1947 and the wholesale price reform of 1949; the same may be said of 1956 because of the wholesale price reductions of mid-1955. (2) The retail trade turnover figures include a small volume of sales of goods by state enterprises to each other and not to consumers. Likewise, the turnover tax is levied on some goods which are sold to state organizations rather than to consumers. While the errors introduced are not equal and offsetting, the trends indicated are nevertheless believed to indicate the correct order of magnitude for at least the years 1949-1956.

to the rise which has taken place is found in the Soviet index of the volume of goods sold to the population through state and cooperative stores.

These figures tend to overstate the actual increase in standard of living for several reasons. First, they take no account of the increase in population which from 1948 to 1956 may have amounted to 25 million persons. Second, while the bulk of the goods consumed by the Soviet people are purchased in state and cooperative stores,

the declining rates of turnover taxation shown in Table II and the index of state retail prices presented in Table IV:

Needless to say, the price index and average rate of turnover taxation are closely related figures since the primary method of lowering the price of a com-

<sup>11</sup> The volume of goods sold on the collective farm markets as a percentage of total retail trade declined from 14.3 per cent in 1940 to 12.0 per cent in 1950 to 9.1 per cent in 1955. See *Narodnoe Khoziaistvo SSSR*, p. 206.

<sup>12</sup> In fact, the data are much more relevant to the level of consumption of urban than peasant populations.

<sup>10</sup> See footnote 6.

modity is by reducing its turnover tax rate.<sup>13</sup>

The changes in standard of living, crudely mirrored by the data in Tables II, III, and IV, while always upward, occur at an erratic pace. The following trends are discernible:

(1) A very rapid increase occurs from 1947 through 1950. From 1948 to 1950, the volume of goods increases from 64 to 100 (index), a rise of more than 50 per cent. The drop in average rate of turnover tax from 1947 to 1950 is 12 points and state retail prices fall by almost one-half. This huge increase is easily explainable. The level of living at the end of the war must have been intolerably low for obvious reasons. As

standard of living of Soviet workers and peasants was below that of most of the other nations of Europe.

(2) Some tapering off occurs in 1951 and 1952 though the increase in volume of goods is still substantial. The average rate of turnover tax hardly declines at all, and prices fall at a much reduced pace. The change in pace may be attributed at least in part to the Korean War and in part probably to a feeling on the part of Soviet leaders that the worst arrears in consumers' goods had now been made up.

(3) The years 1953 and part of 1954 reflect Malenkov's short-lived emphasis on consumers' goods production. Not only were prices and turnover tax rates

TABLE III  
VOLUME OF GOODS SOLD BY STATE AND COOPERATIVE RETAIL STORES

1940	1948	1949	1950	1951	1952	1953	1954	1955	1956
91	64	77	100	115	126	153	181	189	206

Sources: *Narodnoe Khoziaistvo SSSR* (National Economy of the U.S.S.R.), Moscow, 1956, p. 203, for all years except 1948, 1949 and 1956 which are based on *Izvestiia*, January 18, 1950 and *Pravda*, January 26, 1951, and January 31, 1957.

indicated in Table III, the volume of goods sold by state and cooperative stores in 1948 (it must have been much lower in 1946 and 1947) was still way below the 1940 level, in itself not a good year for the Soviet consumer. Large increases were essential to reach the level that even the much-deprived Soviet consumer considered tolerable. In addition, the Soviet citizen of the postwar period was less-easy to satisfy than his prewar counterpart. This is because large numbers had been outside the iron curtain and returned. It had become a matter of common knowledge that, contrary to what they had been taught and had believed before the war, the

reduced, so also were sales of bonds to the population (by one-half) and the agricultural tax. The peasant may have been the principal gainer in this period. Not only was the agricultural tax reduced, but the state substantially increased (a) his money income by raising the prices it was willing to pay for obligatory deliveries of farm products and (b) his income in kind by reducing the amount of obligatory deliveries required. These sudden concessions to the peasants may be realistically viewed not as representing some altruistic impulse but as part of the larger program of getting Soviet agriculture on its feet.<sup>14</sup>

(4) When Bulganin and Khrushchev

<sup>13</sup> Profits could also be reduced and many price reductions are probably partly absorbed by increases in productivity.

<sup>14</sup> See Lazar Volin, "Report of the Agricultural Front," *Problems of Communism*, November-December, 1955.

took over in 1954, they quickly reaffirmed the traditional Soviet emphasis on heavy industry. This change in policy is not fully reflected in our figures until 1955. In 1955, for the first time since 1947, there was no consumers' goods price cut;<sup>15</sup> this also explains the absence of substantial change in the turnover tax rate. The increase in volume of retail trade is the smallest since 1948—8 points in Table III—or about 4 per cent. Bond sales are doubled returning them almost to the pre-1953 level; direct taxes on the population increase again, after a 2-year

II) had the latter two changes been in effect the full year. In fact, however, these were effective only in the last few months of 1956. The only other explanation of the discrepancy, which comes to mind, is that the reported increase in volume of goods sold tended to release some pent-up demand which may have developed over the previous few years.

It is impossible to project what the future holds in store for the Soviet consumer. His standard of living depends very much on the decisions of a few men and on how they react to un-

TABLE IV  
INDEX OF PRICES OF ALL COMMODITIES SOLD BY STATE RETAIL STORES  
(as a per cent of 4th quarter, 1947)

1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
100	83	71	57	53	50	45	43	43	43 ?

Source: *Narodnoe Khoziaistvo SSSR*, pp. 210, 211. The figure for 1947 refers to the 4th quarter of the year, for 1949 thru 1951—March 1, and 1952 thru 1954—April 1. The figures for 1948, 1955, and 1956 refer to the whole year as no significant price changes occurred in 1948 and only minor reductions appear to have been put into effect in 1955 and 1956 (until September). This source also contains the changes in prices for many specific commodities. An English language source containing price-cut information is C. D. Campbell and R. G. Campbell, "Soviet Price Reductions for Consumer Goods," *American Economic Review*, September 1955.

standstill, reaching a new high. The year 1956 appears, at first glance, to be patterned after 1955: again, apparently, no price cuts on items of mass-consumption. On the other hand, however, disposable income was increased by: a reduction in bond sales to the population, an increase in pensions and stipends, and the establishment of a minimum wage which is reported to have added about 8 billion rubles to the national payroll. These factors would appear to have roughly offset the reported 9 per cent increase in volume of goods (valued roughly at 45 billion rubles) sold by state and cooperative stores (cf. Table

predictable internal and external political developments. Over the short run, the economy is productive enough at best to perhaps double the standard of living in a few years. This would be possible in the unlikely event that the Soviet leaders were willing to cut back sharply heavy industrial and military expenditures and to concentrate on the production of consumers' goods. The resulting standard of living would be slightly lopsided by our standards emphasizing, relatively, industrial consumers' goods at the expense of food consumption. But even the food problem could be considerably ameliorated by either increased investment in agriculture or increased foreign trade.<sup>16</sup>

<sup>15</sup> With the exception of a few luxury goods like TV sets and gasoline. Cf. *New York Times*, August 23, 1955.

(16—See next page)



Should the standard of living be raised by the amount indicated, prices would be reduced (and/or wages would be increased) and taxes would be lowered drastically. But as we have indicated, this course of events would be quite out of character for the Soviet economy.

The more likely development is continuation of the present policy of simultaneous absolute increases of consumption, investment, and military production. The high rate of investment is responsible for the fact that Soviet national output as a whole has been increasing at the unprecedented long-run rate of from 6 to 8 per cent annually. An overall rate of growth of such magnitude makes possible the scheduling of substantial absolute increases every year in each of the 3 major sectors of the economy; in fact, increases of 6 to 8 per cent a year in each sector are possible if the new productive capacity is allocated proportionally

among the 3 sections.<sup>17</sup> Until 1950 and in 1953, consumption probably got considerably more than its proportional share, in 1955, considerably less (though some *absolute* increase probably occurred).<sup>18</sup> It is unlikely that the Soviets will over the long run ever slacken substantially the rate of investment since the creation of capital goods is primarily responsible for the rapid rate of growth of the economy. The main hope of the consumer would seem to lie in an easing of international tension and subsequent reduction of military production which would make possible proportionate increases in both consumption and investment. It may be expected that Soviet fiscal policy will continue to reflect decisions regarding the allocation of real resources as the planners continue to use taxes to avoid inflation and its evils.

<sup>17</sup> Assume that total national output is 100 of which consumption is 50, investment is 30, and military use 20. Assume a 10 per cent increase of national output to 110, allocating 5 to consumption, 3 to investment and 2 to military. This gives new totals of 55, 33, and 22. In each case, the increase is 10 per cent.

<sup>18</sup> As we have indicated above, the picture with respect to 1956 is somewhat ambiguous at this reading.

<sup>16</sup> Because of the high cost of the Soviets of producing additional food, it might be expected that in a tension-free world, they would make no attempt to be self-sufficient in food but like Great Britain would concentrate on the production of industrial commodities which they would then export in return for food.

## INTERCOUNTY EQUALIZATION IN CALIFORNIA

### PART 2: ACTION AND REACTION

RONALD B. WELCH\*

ALTHOUGH Newton's third law of motion suggested the subtitle of this installment, his first law is inapplicable to intercounty equalization. Once set in motion, a state equalization body does *not* tend to continue in the same direction at the same rate of speed. This installment describes the motion of the California State Board of Equalization in 1955 and some of the forces which opposed that motion—forces that tended first to arrest the body's motion, then to change its course in certain respects mentioned in the first installment of this article, without, however, changing its objective.

#### *The Staff Recommendations*

When the 1955 market-value estimates for all locally-assessable tangible property in each county and the State as a whole, obtained by means previously described, were compared with 1955 assessed values, the staff of the State Board of Equalization tentatively concluded that there were 19 counties whose average assessment levels were between 15 and 19.9 per cent of market value, 29 whose levels were between 20 and 24.9 per cent, and 10 whose levels were between 25 and 29.9 per cent. The statewide average level was computed at approximately 22 per cent.

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In the face of a constitutional directive to equalize at "true value in money" and a 50 per cent traditional (prewar) assessment level, the Board's staff recommended that the equalization target for 1955 be 25 per cent of market value. This appeared to be a practical standard for assessors to use because it was an easily computed fraction of full value. Also, if supplemented by a liberally dimensioned tolerance zone, it would hold counties nominated for equalization orders to a number for which hearings could be scheduled within the relatively brief period allotted by state law to the intercounty equalization process.<sup>1</sup> Accordingly, it was recommended to the Board that the 19 counties whose average assessment levels appeared to be below 20 per cent be invited to show cause why their assessment rolls should not be raised by given percentage amounts.<sup>2</sup>

<sup>1</sup> In his 1951 opinion on the effect of the law suspending operation of the 1949 intercounty equalization act, the Attorney General stated: "Recognition of the practical impossibility of achieving absolute exactness in . . . [intercounty equalization] leads to the conclusion that a reasonable degree of variation or tolerance is permissible. . . . This is a matter committed initially, at least, to the Board by the Constitution, to be determined in the light of all the circumstances." (18 Ops. Cal. Atty. Gen. 66, 72.)

<sup>2</sup> It had been more or less traditional in California to raise or lower local rolls by percentages evenly divisible by 5—perhaps as a concession to the imperfection of the tools with which assessment-level findings were fashioned. The staff observed this tradition in its recommendations, but the Board departed from it in the final determinations.

It was suggested that no rolls be lowered, since, with a 5-percentage-point tolerance zone centered on the proposed 25 per cent bull's-eye, no county was found to have overshot the target's outer circle.

Between the reporting of the staff's preliminary computations to the Board and the first hearing, the Board's appraisers visited the 19 counties for the purpose of discussing the data with assessors. During the visits, the assessors of some of these counties found several properties for which only part of the assessed value had been entered into the calculation, usually as the result of assessing a parcel as if it were two or more parcels, assessing improvements opposite one land description when they were located on another piece of land under the same ownership, or other ambiguities in the assessment records. In other instances, assessors convinced the staff that some of their appraisals were excessive. As a result, only 14 counties were found to be below the 20 per cent line after the revised data had been processed. The officials of all but one of these 14 counties accepted the invitation to appear before the Board for public hearings.

### *The Hearings*

A half day was set aside for each county's hearing, and in only one instance was it necessary to continue the hearing on a later date. The Board's staff, under the direction of its own counsel and with the advice of the Attorney General's office, made a standard presentation in which the methods employed in the random sampling, the appraisals, and the calculation of the county ratio were described, tables showing the assessed and market values of each property in the sample and the ratio calculation were placed in evidence,

and the records supporting each appraisal were made available for inspection by county officials (but not by the public). The county, usually represented by its district attorney or county counsel, occasionally by private counsel, then set forth its case, and witnesses were cross-examined. At the close of a hearing, the Board took the matter under submission, desiring to hear all the cases before reaching a decision in any one case.

Three notable aspects of the hearings were the use of professional statisticians as expert witnesses by two counties, the employment of private appraisers by some counties to make independent appraisals of some of the properties in the sample, and the all but universal complaint that assessors had had insufficient time to check the appraisals of all properties in the samples.

The professional statisticians sought mainly to discredit stratification by assessed value, to prove that stratification by property use was required for accurate results, and to convince the Board that no action should be taken because the reliability of the estimates from the sample had not been computed. Although they demonstrated high competence in their field, their presentations suffered from unfamiliarity with the assessment process and from lack of constructive suggestions as to how the Board could perform its equalization duties within the limitations imposed upon it by the available data and financial resources.

The testimony of the private appraisers lacked persuasiveness, among other reasons, because it was not made entirely clear that their appraisals were conducted without foreknowledge of the assessed values and the Board-appraised values. More particularly, the proper-

ties on which these witnesses testified were, for the most part, those for which the ratios of assessed value to Board-appraised value were lowest, and this method of sampling the Board's work afforded little or no opportunity to select properties which the private appraisers might have valued more highly than the Board's staff did.

Assessors could not have been expected to have up-to-the-minute appraisal records on all properties in the Board's random samples, and in some instances their records were too far out of date to provide convincing evidence of current value of any of the properties. They sought to overcome this deficiency by reappraising the sample properties but found insufficient time to do so and ended up, like the private appraisers, with biased subsamples of the Board's sample. Their complaints that they lacked time to develop their cases, although exaggerated in some instances, were recognized to have a great deal of merit, and correction of this defect is one of the principal objectives of the new procedures that will first be tested in the 1957 equalization sessions.<sup>3</sup>

Reference to the official reports, statutes, and case law of other states, supplemented by questions directed to authorities in most of the states with currently active state equalization programs, discloses that public hearings of the type employed in California are by no means universal. No hearings at all are held in some states.<sup>4</sup> In others the hearing is informal, and the equalization board may act on the basis of information not in evidence.<sup>5</sup>

<sup>3</sup> These procedures are described on pages 65 to 66 of the first installment of this article.

<sup>4</sup> Cf. *Bi-Metallic Investment Co. v. State Board of Equalization*, 239 U. S. 441 (1915); *People v. Saad*, 104 N. E. 2d 273 (Ill. 1952).

<sup>5</sup> Cf. *Boyd County v. State Board of Equalization*, 296 N. W. 152 (Nebr. 1941).

There has been no specific requirement of a hearing in the California statutes save for the 1949 legislation which has never become operative. The constitutional provision on intercounty equalization, however, refers to "such rules of notice as the state board may prescribe,"<sup>6</sup> and this may be interpreted to mean that a hearing is to be accorded if desired. Moreover, the State Supreme Court has held that the Board's action was reviewable under a section of the Code of Civil Procedure that is applicable to "a proceeding in which by law a hearing is required to be given, evidence is required to be taken and discretion in the determination of facts is vested in the . . . board or officer,"<sup>7</sup> clearly implying that a formal hearing is required by law. A recent superior court decision holds that the Board's action must be supported by evidence properly presented to it.<sup>8</sup> Thus a public hearing in which evidence is taken and a record is made that will support the decision has become firmly imbedded in California thinking on intercounty equalization.

Although such a hearing has a strong appeal to anyone who believes in democratic government, it may have the unfortunate effect of arraying state and local officials as antagonists in an action in which they should be allies—or at least not opponents. In an economy more often characterized by inflation than by deflation, there is a natural and apparently irresistible tendency for assessed values to fall below accepted standards. Hence, equalization orders

<sup>6</sup> *California Constitution*, Art. XIII, Sec. 9.

<sup>7</sup> *Code of Civil Procedure*, Sec. 1094.5. See *People v. County of Tulare*, 45 Cal. 2d 317 at 319.

<sup>8</sup> *County of Tulare v. State Board of Equalization et al.*, Superior Court, Tulare County, No. 47678 (1956).

of the uniform-ratio type<sup>9</sup> commonly result in increases in local assessment rolls, and county officials usually feel obliged to defend their constituents from the loss of state aid, the shift of taxes from state-assessed to locally-assessed property, and the increase in local budgets (presumably those not controlled by the defenders) which may ensue from adoption of a proposed order. Thus the state agency finds the staff which has worked under its direction pitted against the county assessor, who should be happy to have an outside agency perform the distasteful task of raising his values if they are lower than they should be, and against the county supervisors, who should not view a larger local tax base with utter repugnance. No matter how well intentioned the participants, it is difficult to maintain friendly relations throughout the ensuing controversy.

### *The Orders*

After completing the hearings and considering the evidence, the Board made findings which modified the staff's proposals in three respects: (1) Several counties whose assessment levels had originally been computed by the staff to be slightly below the 20 per cent threshold were found to be on or above the threshold, and several others were found to be a little higher than the earlier computations had indicated; (2) the percentage raises ordered were calculated to place a county's average assessment level at the average level for all counties that fell within the 20 to 30 per cent tolerance zone rather than at the 25 per cent standard; and (3) the

percentages by which local rolls were to be raised were rounded to the closest whole number instead of the closest figure evenly divisible by five.

Fourteen orders were issued, increasing locally-assessed values by percentages ranging from 19 to 39. As will be explained shortly, one county successfully resisted the order, so the actual increases were confined to 13 counties, where they amounted, in the aggregate, to 25.3 per cent of the locally-assessed values of these counties. The increases raised the total assessed value on all local rolls in the State 3.3 per cent and the total local tax base, whether locally- or state-assessed, by 2.9 per cent.

The percentage increases in local rolls and local tax bases were somewhat mitigated by the fact that the Board's orders were applied only to the so-called "secured" local assessment rolls. Because taxes on the 1955 "unsecured" rolls (the liabilities of persons who, in the opinion of the assessor, owned too little real property in the county to secure their tax payments) were levied under the California Constitution at the 1954 "secured" tax rate,<sup>10</sup> the assesseees on these rolls could not have benefited from any compensating rate reduction that would follow from an expanded property tax base. Moreover, these taxes were due long before the Board's intercounty equalization sessions had begun, had been largely collected before any Board orders were issued, and would have had to be rebilled in larger amounts had the orders applied to the assessed values on which they were based.

### *Fiscal Effects of the Orders*

The Board's orders had a number of fiscal effects, most of which had been fairly well anticipated. The effect which

<sup>9</sup> As readers of the first installment of this article will recall, this term connotes an order that changes assessed values on local rolls, the only type of order available to the California Board of Equalization in 1955.

<sup>10</sup> California Constitution, Art. XIII, Sec. 9a.

the Board preferred to emphasize was the prospective redistribution in the next succeeding fiscal year of approximately \$4½ million of school equalization aid from school districts in the 13 counties whose assessments had been raised to the school districts of counties whose original assessments were at acceptable levels. The Board's critics centered their attack upon the \$5½ million of taxes which the orders were believed to have shifted from state-assessed to locally-assessed property owners. Some of these critics asserted that state-assessed values were nowhere near the alleged 50 per cent level, but none, as far as the writer recalls, claimed that they were below 25 per cent. Most of them assumed without arguing the issue that any shift of taxes from the utility companies to other property owners was oppressive and inequitable.

There were several other less spectacular fiscal effects of the orders. They disqualified something less than one per cent of the veterans who had been enjoying veterans' exemptions in the affected counties but who could no longer qualify for this benefit because of the higher assessments of their property and the constitutional limitation of the exemption to persons owning property (both taxable and nontaxable) valued by the assessor at less than \$5,000. A surprisingly small number of welfare aid recipients—probably not more than two-tenths of one per cent of such recipients—were disqualified under similar but more generous property-ownership limitations. Loans from the State for school construction purposes became harder to get for school districts in the 13 counties, and repayments of outstanding loans were increased by these districts to the extent of \$900,000 in the 1956-1957 fiscal year.

Some of the most interesting effects of the intercounty equalization orders are among the hardest to discern. Among these is their influence upon budgets, tax levies, and tax rates. The difficulty of discerning this effect arises from the fact that intercounty equalization orders were only one of several things that influenced 1955-1956 local government financing, and that it is impossible to isolate the effects of this one influence. Two approaches to the problem afford some evidence, however, that the higher tax bases resulting from the orders were only partially offset by lower tax rates.

If the budgeted expenditures of a local government had been unaffected by the higher tax base, its 1955-1956 tax rate would have been lower than it would have been in the absence of the higher base. The amount of reduction, however, would have been smaller for a government which taxed a large amount of state-assessed property (whose assessed value was unaffected by the order<sup>11</sup>) than for one which taxed very little such property. If there had been such a thing as a taxing district containing nothing but state-assessed property, its tax rate could not have been lowered at all; and if there were districts in which all taxable property was locally-assessed, they could have reduced their tax rates enough to offset exactly the higher assessed values.

There was nothing in the 1955 orders that *forced* local governing bodies to increase their budgets. A few school districts had very strong inducements to do so, because, if they did not levy rates of designated magnitudes or higher for the 1955-1956 fiscal year, they would

<sup>11</sup> Except in a few cities which assessed and collected their own property taxes, where, for reasons that will not be explored here, state-assessed values were decreased.



not qualify for state equalization aid in the 1956-1957 fiscal year. Other school districts may have been induced to increase their budgets in order to enter the 1956-1957 fiscal year with a reserve to cushion the initial shock of reduced state equalization aid and heavier state construction loan repayments in that year. But the equalization orders gave other local governments no reason to increase their budgets other than the pleasant prospect of spending more money without having to levy a higher tax rate.

The fact that preliminary county budgets were nearing completion, if they were not already completed, by the time intercounty equalization orders were "proposed" by the State Board of Equalization affords one test of the effect of the orders upon final budgets. Without exception, the budgeted expenditures under the control of the county boards of supervisors were almost the same in the final budgets as in the preliminary budgets.

The one exception was a county which had received one of the highest percentage increases ordered by the State Board. The supervisors of this county increased the authorized expenditures in the budgets under their control by  $2\frac{3}{4}$  per cent, more than \$800,000.

The record of the local governments whose expenditures are not controlled by the county supervisors is not as clear. Preliminary budgets are unavailable for cities and for school districts and other independent special-purpose districts in many counties. In three of the four affected counties for which the data are available, the authorized expenditures of the independent districts were substantially the same in the final budgets as in the preliminary budgets; in the fourth they were only 7 per cent higher. But the school districts in one of the three

counties are rumored to have prepared two preliminary budgets, one contemplating no change in locally-assessed values, the other prepared on the assumption that the proposed intercounty equalization order would be issued and containing authorized expenditures that were more than 10 per cent higher than those in the alternative budget.

Some light is also thrown on the response of tax-levying authorities to the higher tax bases provided by the 1955 equalization orders by comparing final 1955-1956 budgeted expenditures, tax levies, or tax rates with their 1954-1955 counterparts. The weakness of such comparisons lies, of course, in the fact that there may be any number of reasons why a county's budget would have changed from one year to the next even in the absence of the higher tax base that resulted from the intercounty equalization order.

The aggregate budgeted expenditures under the control of the boards of supervisors of the 13 counties were 6 per cent higher for the 1955-1956 fiscal year than for the 1954-1955 fiscal year, and the *per capita* budgeted expenditures were nearly 4 per cent higher. Corresponding figures are not available for all the other counties of the State, but personal observations suggest that these are not abnormal increases and might easily have occurred had assessed values remained at their original levels. Three of the 13 county boards, however, authorized per capita expenditures that exceeded those of the prior year by over 10 per cent, and it is possible, if not probable, that these boards were more generous by reason of their ability to be so without increasing tax rates over those levied in 1954. The aggregate budgeted expenditures of local taxing districts not under the jurisdiction of

the county supervisors, mainly school districts, were 10.1 per cent higher than in the 1954-1955 fiscal year, and there were five counties in which the increases exceeded 10 per cent. The *per capita* increases for these independent districts aggregated 7.9 per cent and exceeded 10 per cent in four of the 13 counties.

In the 13 counties that responded to intercounty equalization orders, per capita general county property tax levies were increased by 7.2 per cent over those of the prior year, as compared with a 9.0 per cent increase in the remaining 45 counties of the State and a 4.5 per cent increase in 44 counties exclusive of the State's colossus, Los Angeles County. Per capita school district levies were 18.2 per cent higher in the 13 counties, 5.6 per cent higher in the State's other 45 counties, and 7.1 per cent higher in the latter counties other than Los Angeles.

The overall average property tax rate in each of the 13 counties was lower in 1955 than in the preceding year, and it is almost certain that it would have been higher than in 1954 save for the Board-ordered increase in assessed values. General county rates alone would have had to average 2.7 per cent higher in 1955 to have financed finally authorized county expenditures with the pre-equalization tax base, an increase almost exactly matched by the actual increase in the average county rate for all other counties except Los Angeles. Average school district rates in the 13 counties, however, would have been 13.1 per cent higher had authorized 1955-1956 expenditures been levied on pre-equalization assessed values as contrasted with a 5.4 per cent rise in the average for all other counties except Los Angeles. The general county tax rates set by the supervisors of the 13 counties look even

better, but those required to finance expenditures authorized by their school boards look even worse, if Los Angeles County is included in the control group by which the normality of the increases in the 13 counties is judged.

In general, it can be said, then, that budgets under the control of the county supervisors seem not to have been raised consequent to the intercounty equalization orders. The higher tax bases were commonly used, however, by the boards of smaller tax districts as a means of raising more money with the same tax rates that would have been used in the absence of orders or with rates that only partially compensated for the higher bases.

#### *Public Reaction*

Numerous taxpayers expressed indignation at the intercounty equalization orders, especially in the two or three counties whose tax bills carried notices that assessed values had been raised by the Board. Many of the complainants thought that raising assessed values by a certain percentage was the equivalent of raising their tax bills by an equal percentage. Thus the local tax-levying bodies largely escaped responsibility for any increase in budgeted expenditures that prevented tax rates from falling as much as might have been expected with the higher tax bases.

In an effort to correct this impression and other misunderstandings, the Board gave widespread distribution to a popularly written, illustrated explanation of the intercounty equalization process and its effects. This attempt to tell the Board's side of the story brought its own criticism, perhaps best expressed by the resolution of one county board of supervisors which censured the State Board for circulating at public expense

a "casuistical pamphlet" containing "sophistical statements which are, if not misleading and intemperate, calculated to misrepresent the trust and confidence with which the people of California endow their public officials."

Whether the Board's pamphlet did much to allay the public wrath is hard to say, but most of the letters of protest which reached the author's attention were from persons who apparently had not seen it. These letters were disheartening. An anonymous taxpayer wrote one board member that he "should be put behind bars with the rest of the highway robbers." Another termed the Board of Equalization's action "legal confiscation by the politician" and suggested that the Board's name was given it "to make the highjacking a little less painfull."

The county board that resolved against the pamphlet was not the only critical one. At least two other boards of supervisors adopted derogatory resolutions, and a fourth considered but did not adopt one which charged that the state agency, by using standards acceptable to the public utilities, was "maintaining a persistently discriminatory, even suggestively subversive, attitude toward private property." The County Supervisors Association was kinder than some of its constituent boards; at its annual conference, it adopted a resolution that stressed the lack of time for a county to prepare its case against the recommendations of the Board's staff and the "conflicting functions of conducting assessment level surveys and then sitting in a quasi-judicial role at equalization hearings on its own work."

An interesting reaction to the orders was the formation of an organization known as the Common Property Taxpayers Association. This group unsuc-

cessfully petitioned the Governor to call a statewide conference on property tax equalization, called two or three public meetings which were addressed mainly by persons who did not admire the work of the State Board or view the results as a positive contribution to tax equity, and was represented at a number of legislative committee hearings. When the 1956 equalization season came and went with a single intercounty equalization order, the Association took credit for the small number of orders. If the Association has taken a position on the new program that was worked out between the county assessors and the Board in the fall of 1956, the writer is not aware of it.

### *The Litigation*

On August 30, 1955, two days before the board of supervisors was required to set 1955-1956 tax rates, officials of one of the 14 counties to which orders had been issued obtained in the superior court an alternative writ of mandate directing the State Board to set aside its order or to show cause at a specified date why it had not done so. Seeking an early final determination of the validity of the order, the Attorney General immediately petitioned the Supreme Court for a writ directing the county to comply with the order. By a 4-3 decision, the Supreme Court denied the petition. The majority opinion held that the Board's action was reviewable by the superior court under provisions of the Code of Civil Procedure. The Court then concluded that it had no valid reason to assume original jurisdiction while the action was pending in the superior court. The dissenting opinion urged that the pending proceedings in the lower court did not bar proceedings in the Supreme Court, that

the importance of completing the litigation promptly justified assumption of jurisdiction by the highest state court, that the State Board had acted lawfully, and that the county officials had no alternative but to give effect to the order.<sup>12</sup>

The case was then brought to trial in the superior court, and the judge ruled from the bench in favor of the county. The oral ruling was based on two principal grounds. First, it was held that the Board's order, although not specifically confined to the "secured" roll, was illegal because it had been interpreted by the Board's staff to be applicable to only this portion of the local roll.<sup>13</sup> Second, it was held that the Board had acted upon evidence not properly before it by reason of circumstances peculiar to the Tulare County hearing. Although these two grounds were liberally supplemented in the findings of fact and conclusions of law that were eventually signed by the judge, it would appear, at least to a lay observer such as the author, that they were the rocks upon which the order foundered.

Feeling that "the issues in the case are such that a decision by the Supreme Court would afford it little guidance in the performance of its equalization duties,"<sup>14</sup> the State Board decided not to appeal the decision. In reaching this decision, the Board was doubtless also giving heed to the minority view in the Su-

preme Court that "it is of vital public importance that . . . [the litigation] be completed as soon as possible to avoid complete disruption of the taxing process."<sup>15</sup>

The victory of Tulare County stirred hopes of tax reductions in the breasts of taxpayers in several of the counties which had complied with Board orders, and, perhaps with some encouragement from those with other interests in litigation, a few of them paid their taxes under protest. To the best of the writer's knowledge, no suit has yet been brought for recovery of these taxes; over a year having elapsed, the probability that one will be brought appears to be remote.

Another case on a different facet of the intercounty equalization process has just been decided by the superior court.<sup>16</sup> A member of the Board's staff had requested access to the books of account of an industrial concern for use in the appraisal of personal property and fixtures and had been refused. The Board then proceeded to subpoena the records under statutory authority that the property owner claimed was inapplicable to locally-assessed taxpayers. Under the theory advanced by the taxpayer, the Legislature had neither given nor possessed the right to give the subpoena power to the State Board when the Board had no authority to assess the property which it sought to appraise. Had the court accepted this reasoning, the random sampling technique that had been so painstakingly developed would have been seriously damaged if not destroyed, and the Board would have been forced to turn to the sales-ratio method

<sup>12</sup> *People v. County of Tulare*, supra, note 7.

<sup>13</sup> The Constitution, in a passage that has remained as originally written in 1879, directs the Board to "increase or lower the entire assessment roll." (*California Constitution*, Art. XIII, Sec. 9.) The Board's staff, with the informal concurrence of the Attorney General, had assumed that the sense of this passage was modified when the Constitution was amended in 1924 to provide for extending taxes on the unsecured roll at last year's secured rate.

<sup>14</sup> *Annual Report of the State Board of Equalization, 1954-55*, p. 6.

<sup>15</sup> *Loc. cit.*, p. 323.

<sup>16</sup> *Redding Pine Mills, Inc. v. State Board of Equalization*, Superior Court, Shasta County, No. 22355.

of intercounty equalization. But the court decided the case in the Board's favor. Whether an appeal will be taken remains to be seen.

### *Conclusion*

The present outlook for intercounty equalization in California is a much more promising one than prevailed a year ago. The county assessors and the State Board of Equalization are in substantial agreement on new techniques that have broken down the barrier of distrust which had sprung up between them in 1955. The locally-assessed taxpayers in the counties which received orders appear to have reconciled them-

selves to their appreciably higher assessed values and moderately higher tax bills except where persons unalterably opposed to intercounty equalization have continued to apply salt to their wounds. The State Legislature seems to be determined to enact an intercounty equalization law that will supplant the much-maligned 1949 act with one which sanctions the new techniques and assures continued efforts by the State Board to narrow the inequalities that remain in average county assessment levels. The State Board, in turn, has been strengthened in its resolve to maintain California's reputation for good administration of all its tax laws.

## STATE SUPERVISION OF PROPERTY TAX ADMINISTRATION \*

JOHN A. GRONOUSKI †

### *Introduction*

FOR many years it was fashionable for students of taxation to levy their heaviest barrage of criticism at the property tax. Questions of equity aside, they charged that the property tax defied all attempts at effective administration. Many students predicted (with considerable satisfaction) that the property tax eventually would be replaced by a tax base more suited to equitable administration.

Despite its critics, however, the property tax remains the major source of tax revenue for local governments. In 1955, the last year for which data are available,<sup>1</sup> 86.9 per cent of all local government tax revenues came from property taxes. Even bringing federal and state aid into the picture does not leave one with the impression that the property tax is a dying institution; 42.7 per cent of local revenue from all sources in 1955 was derived from the taxation of property.

\* This article is a summary of *Equalization Programs and Other State Supervisory Activities in the Property Tax Field*, Research Report No. 42, Federation of Tax Administrators, Chicago, January, 1957. The report was prepared by the present author while on the Federation's research staff. Space limitations require summary presentation of much of the information which is given detailed state-by-state treatment in the original report.

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<sup>1</sup> *Summary of Governmental Finances in 1955*, Bureau of the Census, August 20, 1956, Table I, page 22.

In addition to providing local governments with their major source of revenue, the property tax base is serving an important role as a measure of fiscal capacity in the apportionment of a growing volume of state aid funds to localities. This is a major reason why, despite the decline of the property tax in most states as an important state revenue source, there is widespread interest among tax administrators, legislators, and taxpayer groups in improving the standard of local property tax assessment and providing for interdistrict equalization of assessment levels. Those concerned with the growth of state budgets have also come to realize that the best hope of curbing the ever-expanding demand on state revenues for aid in carrying on local governmental functions is to make the property tax a more effective instrument of local government finance.

### *Postwar Legislation*

The widespread interest in improving property tax administration is clearly reflected in the large volume of state legislation in this area since World War II. Over half of the states passed laws during the past decade providing for the development of reappraisal, equalization, or related programs in the property tax field. Reappraisal legislation was enacted by Colorado and Iowa in 1947, Kentucky and Oregon in 1949, Utah in 1953, and Arkansas, Idaho, Maryland,



and Washington in 1955. Equalization programs were adopted by Illinois in 1945, California, Ohio, and New York in 1949, Nevada, New Mexico, and West Virginia in 1955, and Rhode Island in 1956. In addition, the Kansas Commission on Revenue and Taxation is required by a 1949 statute to develop annual assessment-sales ratio studies, and three other states, Pennsylvania in 1947, New Jersey in 1954, and Indiana in 1955, enacted laws requiring the computation of assessment ratios for school aid distribution purposes. Also, in 1956 the Maryland legislature enacted a law requiring the tax commission to certify county and Baltimore city assessment ratios to the state board of health.

Three other states, Massachusetts, Nebraska and New Hampshire, enacted legislation in 1955 authorizing the state agency to provide local assessors with greater assistance in the assessing process. In Massachusetts, a special commission was directed to submit a table of equalized valuations for the towns and cities of the Commonwealth. Iowa (1947) adopted an appointive county assessment system, and Kansas (1955) authorized counties to change from an elective to an appointive county system. Minnesota (1947) and South Dakota (1955) made it mandatory for counties to employ county assessors or county supervisors of assessment. In addition, Nebraska (in 1953 and again in 1955) changed its assessment standard, as did Wyoming (1955). Missouri (1955) enacted legislation calling for a proportional reduction in local tax rates where the level of assessment is raised by more than 10 per cent.

#### *Administrative Action*

The foregoing legislation clearly shows that the legislatures of the several

states are seriously concerned about the administration of the general property tax. However, the enactment of legislation is at best no more than a preliminary step in any program for improvement; the important question concerns the administrative action which is taken to implement the program. It is the latter which is the principal subject of this study.

The discussion which follows is based primarily on replies to a questionnaire returned by tax administrators of 42 states and on subsequent correspondence with those officials. Programs described are in general those undertaken prior to January, 1956. There are six states for which the information sought in the questionnaire is lacking. These are Florida, Georgia, Indiana, Louisiana, Nevada and Texas.

Replies to the questionnaire indicated that in 39 out of the 42 states a state agency is engaged in some form of supervisory activity in the property tax field. The exceptions are Delaware, Rhode Island, and Tennessee. The programs fall into three general categories: those involving equalization activities; those related to reappraisal programs; and those concerned with the provision of specific aids to local assessors. In all, 19 states are engaged in equalization activity, 14 states are conducting reappraisal programs, and 39 states are providing local assessors with one or more of a variety of aids designed to raise the quality of assessments.

It should be noted at the outset that these programs vary widely among the states, both in scope and intensity. Thus, while specific aids are provided for local assessors in 39 states, this help is limited to an explanation of new statutes or approval of assessment forms in some states; other states provide a wide

variety of auxiliary services, including the preparation of assessment manuals and price lists, the organization of assessor schools and field training programs, the furnishing of tax maps and forms and technical personnel to aid local assessors in the appraisal of complicated industrial and commercial properties. The reappraisal programs in operation also vary greatly in their nature and accomplishments; some states have comprehensive state-wide programs involving a high degree of state direction by a large and competent staff, while other state agencies, poorly financed and staffed, are obliged to limit their activities in this area to supervision of a very general character.

There is also considerable variation in the equalization programs of the 19 states engaged in this activity. However, the states included in this group all have programs that are state-wide in scope. All of them conduct assessment ratio studies to determine variations in the level of assessment among the state's taxing districts and, in some cases, among the various classes of property within the districts. A state-wide assessment ratio study is regarded as the basic tool of equalization; for present purposes, therefore, a state is not included among those having equalization programs unless it conducts such studies as a regular part of its program.

### *Equalization*

The term equalization, as it is defined in the questionnaire upon which this survey is based, relates to a program designed to increase uniformity among assessment districts and/or among classes of property. In other words the term is used to refer to adjustments affecting masses of property; it is not used to include the process of review and revision

of individual assessments.

As noted previously, the basic tool in a program of property tax equalization is the assessment ratio study. For this reason much of the equalization portion of the questionnaire was devoted to inquiries concerning the extent to which this technique is employed, the means of compiling and processing the data, and the manner in which the several states resolve various theoretical and practical problems involved in using ratio study procedures.

The replies revealed that state-wide assessment ratio studies are being conducted on an annual basis by 20 states and biennially by three others. Another state made such a study in 1950 and is making a special study again with 1956 data. These 24 states are listed below:

Alabama	Montana*
Arkansas	Nebraska
California	New Hampshire*
Illinois	New Jersey
Iowa	New York
Kansas	Ohio
Kentucky	Oregon
Maine*	Pennsylvania
Maryland	Virginia**
Michigan	Washington
Minnesota	West Virginia
Missouri	Wisconsin

This list includes the 19 states regarded for purposes of this study as engaging in state-wide equalization programs and five other states—Alabama, Kansas, Maryland, Montana, and Virginia—which conduct ratio studies but have to date made little or no direct use of the data for equalization purposes.

While all 24 of these states determine assessment ratios on a state-wide basis, the questionnaire replies revealed con-

\* Biennially.

\*\* Special study in 1956.

siderable variation among them with regard to scope and method. One example is in the type of property on which the assessment ratios are based: the states are evenly divided between those which confine their analysis of assessment ratios to real property and those which include personal property as well as real property within the scope of their studies. Of the 12 states in the latter group,<sup>2</sup> seven indicated that all taxable personalty is included, while five noted that the inclusion of personal property is limited to all or selected categories of tangible personalty. In regard to this group of states, it may be well to note in passing that, while the questionnaire replies did not reveal the degree of success experienced in attempting to include personal property in the assessment ratio base, there is reason to believe that the performance record varies considerably among the states on this score. From the available information it appears that several states, including Wisconsin, West Virginia, Kentucky, and Oregon, have had considerable success in determining the ratios of assessment to full value for personalty.

All of the states indicated that assessment ratios are determined for one or more categories of the state's political subdivisions, with the county being the taxing jurisdiction most commonly used as the assessment ratio unit. Twenty of the 24 states determine assessment ratios at the county level, while two use municipalities, and two use cities, towns and villages as their assessment ratio units. Six of the 20 states which derive county ratios also find ratios for one or more categories of taxing districts below the county level.

<sup>2</sup> Arkansas, California, Iowa, Kentucky, Maine, Michigan, Montana, Nebraska, New Hampshire, Oregon, West Virginia, and Wisconsin.

On the other hand, seven of the states indicated by their replies that they do not determine assessment ratios for classes of property; another seven divide all property into two general classes (urban and rural) for this purpose, while the property class breakdown in eight other states varies from "real and personal" in Michigan to a very detailed breakdown of both real and personal property in Wisconsin. No information on this point was received from one of the assessment ratio states.

One of the first questions that arises in the planning of an assessment ratio study is whether sales or appraisals, or both, should be used as the standard of full value in determining the ratios. That the verdict has been substantially decided in favor of the use of sales is indicated by the fact that only three of the equalization states rely exclusively on appraisals in deriving assessment ratios. On the other hand, 12 of the states use sales data only, while five other states rely primarily on sales, limiting the use of appraisals to types of property infrequently sold. The remaining four states use both sales and appraisals for all classes of property in their assessment ratio determinations.<sup>3</sup>

Of the many perplexing problems which confront those charged with conducting assessment ratio studies, one of the most troublesome is the selection of a measure of central tendency to use in deriving an average assessment ratio from the original assessment and sales (or appraisal) data. As a practical

<sup>3</sup> Appraisals only: California, Michigan, and West Virginia. Sales only: Alabama, Illinois, Iowa, Kansas, Maryland, Missouri, Montana, Nebraska, New Hampshire, New Jersey, Virginia, and Washington. Sales except for infrequently sold property: Arkansas, Kentucky, Maine, Minnesota, and Ohio. When staff becomes available, New Jersey plans to use appraisals on this type of property. Sales and appraisals on all property: New York, Oregon, Pennsylvania, and Wisconsin.

matter the choice is between three alternative measures of central tendency: the arithmetic mean of the individual ratios (the sum of the ratios found separately for each property in the sample, divided by the number of items in the sample); the median (the middle ratio when the ratios found separately for each property in the sample are arranged in ascending order from the lowest to the highest ratio); and the ratio of aggregates (total assessed value of all properties in the sample divided by their total selling price). In many cases the average ratios derived by the three methods will give substantially similar results, but in other instances they will differ markedly. When this occurs, the natural tendency is for local officials to champion use of the method which results in the highest assessment ratio for their district.

While all three measures are being used by assessment ratio states, the ratio of aggregates has the most adherents. Of the 22 reporting states 12 employ a ratio of aggregates (one of which, however, uses the median when its use results in a higher ratio), seven use the median, and three states employ the mean of the individual ratios.

The questionnaire replies revealed that a wide variety of purposes are served by the information derived from assessment ratio studies, with only three states reporting that no direct use is made of the data. For the remaining 21 states, by far the most prevalent use is for the apportionment of state school aid. In all, 17 states fall into this category, although in two of these states the assessment ratios are only used indirectly for this purpose. Among other uses made of ratio study results the following were most frequently mentioned: for apportioning state funds for pur-

poses other than school aid, ten states; to equalize the tax burden between property assessed and/or taxed at the state level and locally assessed property, 11 states; to equalize the tax burden on property located in two or more assessment districts, 11 states; to allocate county taxes to districts within counties, eight states (mandatory in four states and used voluntarily by all or most of the counties in the other four); to equalize the tax burden among property classes within local taxing districts, five states; and as a basis for tax rate and debt limits, six and seven states, respectively.

Not included in this enumeration of the purposes served by assessment ratio studies, but certainly of considerable importance, is the fact that they indicate the general level of assessment prevailing in the state. Table I, which presents the results of studies conducted in recent years by 22 states, provides statistical evidence in support of the generally accepted proposition that fractional assessment is the universal practice. Results were available for 20 of the 24 states that regularly conduct ratio studies. Special studies made by two other states, Idaho and Indiana, are also summarized in the table.

The mean of the state-wide average assessment ratios included in the table comes to 31.19 per cent; in other words, the average level of assessment is just under a third of current market value in these 22 states. As computed for the table the state-wide average ratios range from a low of 13 per cent for Idaho to a high of 57.82 per cent for Wisconsin. The average deviation around the mean (i.e., the sum of the differences between the mean of 31.19 per cent and the state-wide average for each of the 22 states divided by 22) comes to 7.9 per-

centage points.

While the data in the table serves a useful purpose in providing a general picture of assessment levels in these states, several limitations regarding the usefulness of the table for comparative or analytical purposes should be noted. The most obvious qualification is that the ratio studies included were not all made in the same year—the time span ranges from 1949 to 1955. It is clearly

basis of the available data.<sup>4</sup> In some cases the estimation technique used no doubt introduced some error into the results.

As noted elsewhere, 19 states are currently engaged in state-wide equalization programs. These states employ either of two general procedures in carrying out their equalization activities.

One approach is to establish a state table of equalized values, the use of

TABLE I  
STATE-WIDE ASSESSMENT RATIOS IN SELECTED STATES  
(Based on assessment ratio studies made by state agencies)

State	Ratio Year	State-wide Average	Statutory Standard	County Ratios	
				Low	High
Arkansas	1949	16.34%	20%	11.24%	35.57%
California	1955	22.8	100	20.0	30.0
Idaho	1952-53	13.0	100	8.94	25.53
Illinois	1952	51.32	100	na	na
Indiana	1951	30.0	100	24.0	37.0
Iowa	1954	26.99	60	21.55	40.62
Kansas	1954	23.49	100	13.0	52.0
Kentucky	1955	31.8	100	22.2	50.0
Maine	1954	34.56	100	29.17	42.67
Maryland	1952	40.0	100	25.0	60.0
Minnesota	1954	35.99	100	16.91	51.99
Missouri	1955	29.75	100	18.21	44.20
Montana	1954	30.5	100	19.3	51.8
Nebraska	1955	31.0	50	na	na
New Jersey	1955	21.28	100	14.22	51.78
New York	1954-55	39.34	100	na	na
Oregon	1955	24.29	100	14.97	34.22
Pennsylvania	1955	39.8	100	19.3	65.7
Virginia	1950	30.0	100	6.1	60.9
Washington	1955	19.22	50	13.2	26.3
West Virginia	1955	36.96	100	17.89	63.72
Wisconsin	1954	57.82	100	32.08	80.59

inappropriate to compare the 1949 assessment performance in one state with the 1955 performance in another, especially in view of the considerable amount of state equalization and reappraisal activity during this period. Another limitation results from the fact that a number of states included in the table did not determine an average assessment ratio on a state-wide basis. For these states (Maine, Maryland, New Jersey, New York, and Oregon) the state-wide average was estimated on the

which is required for certain specified purposes, e.g., distribution of state aids, apportioning of county tax burdens among subsidiary taxing districts, and as the valuation base for the levying of state property taxes. The states in this

<sup>4</sup> The averages used are the arithmetic mean of the municipal ratios in Maine; city, town and village ratios in New York; the 567 taxing district ratios in New Jersey; and county ratios in Oregon and Maryland. In addition, the Nebraska ratio is an average of the state-wide urban and rural ratios. It should be noted that the New York average is not representative of New York City, where the mean of the five borough ratios is 83.6 per cent.



category do not as a rule issue equalization orders as such; the table of equalized values is the equalization medium.

On the basis of the questionnaire replies it appears that ten of the 19 equalization program states follow the equalization procedure just described: Arkansas, Maine, New Hampshire, New Jersey, New York, Oregon, Pennsylvania, Washington, West Virginia, and Wisconsin. In all the states which follow this variable-ratio method of equalization, the local assessment level is not affected; rather, equalization is reflected in adjustment of quantities such as state assessed values, state tax rates, state aids, and the state tax levy.

The other equalization procedure, which replies to the questionnaire indicate is employed by nine of the 19 equalization program states, involves the issuance of equalization orders to those taxing districts (or to classes of property within the districts) with a level of assessment differing from the prescribed standard. In some cases orders are issued to all jurisdictions (usually counties) in the state; more commonly they are issued only to those districts (or for those classes of property) where the level of assessment is below the desired level. The states which fall into this general group are California, Illinois, Iowa, Kentucky, Michigan, Minnesota, Missouri, Nebraska, and Ohio.

Equalization in all of these states is according to uniform-ratio procedures. However, in Michigan equalization is achieved by a change in the local tax rate rather than in the level of assessments, and in Missouri the county board of equalization has the option of changing its assessment roll to conform to the equalization order or making a blanket adjustment by changing the tax rate. Minnesota's use of uniform-ratio pro-

cedures is confined to equalization for tax purposes; where the equalization order is for school aid purposes equalization is effected by the variable-ratio method.

Two of the states in this group, Missouri and Ohio, have a statutory requirement that an increase in a taxing district's assessment level resulting from an equalization order must be compensated by a proportional cut in the tax rate. However, Ohio's law applies only to tax levies voted in excess of the state's 10 mill limitation. A third state, Illinois, also required a proportional cut in the tax rate during the transition stage of its equalization program, but this provision expired in 1952.

All nine uniform-ratio states reported that their equalization program is an active one. Their questionnaire replies listed the latest year in which equalization orders were issued and the number of taxing districts involved, as follows: California, 14 counties in 1955; Illinois, all counties in 1955; Iowa, personalty annually and real property every four years, by counties; Kentucky, 69 counties in 1954; Michigan, all taxing districts in 1955; Minnesota, real property in 1954 and personalty in 1955, in all taxing districts; Missouri, real property in 28 counties and personalty in 72 counties in 1955; Nebraska, two counties in 1955, 18 counties in 1954 and 83 counties in 1953; and Ohio, all taxing districts in 1952.

California's reply stated that a taxing district's assessment level can differ from the prescribed standard by as much as 20 per cent before an equalization order is issued. A tolerance of 10-15 per cent is allowed in Missouri and Nebraska, 5 per cent or less in Ohio, and a few percentage points in Illinois. The other four states indicated that no



standard tolerance has been established.

### *Reappraisal Programs*

As noted earlier, of the 42 states replying to the questionnaire, 14 indicated that they are engaged in a reappraisal program under the direction of a state agency. There is wide variation among these states, however, regarding both the extent of state participation and the type of program being carried on. A number of states engaged in this activity operate on a comparatively broad scale, with a sizable field staff aiding and supervising local assessors or, in some instances, actually performing the reappraisal function. On the other hand, several of the state agencies, poorly financed and staffed, are compelled to limit their activity to general supervision; in those states the main burden for carrying out the program is still largely in the hands of the local assessors.

This section will deal with those aspects of state reappraisal programs which serve to indicate the extent of participation in the reappraisal process at the state level. Attention will be directed to the extent to which the state staff aids and supervises local assessors in the field, the authority of the state agency to order reappraisals (or to make such reappraisals) in those taxing jurisdictions where local officials have failed to act, the degree to which the state shares in the costs of the reappraisal program, and the present status of the program in terms of the state-wide reappraisal objective. In most instances reference to specific state aids—for example, preparation of manuals, publication of newsletters, provision of mapping services, and sponsorship of schools for assessors—will be deferred to the next section.

Table II provides a brief summary of

the programs being conducted in five states which have made considerable progress in the development of state-directed reappraisal programs. The programs of these states are characterized by a substantial amount of supervisory activity at the state level, as evidenced by fairly sizable field staffs engaged in training, aiding and supervising local assessors and, in some instances, performing reappraisals for local taxing districts on a contract basis. It will also be noted that in one of these states (Colorado) a state-wide reappraisal under state direction has already been completed, while in the other four (Idaho, Kentucky, Oregon, and Utah) considerable progress has been made toward the accomplishment of this objective.

While the programs of these five states are among the most comprehensive of those that have been developed at the state level, several other states among the 14 whose questionnaire replies indicated the existence of a reappraisal program are making significant progress in this area. The remaining nine states are listed below together with a brief summary of the nature of their reappraisal programs.

*Arkansas.*—The state's reappraisal (and equalization) program derives from 1955 legislation and was therefore in its beginning phase at the time of the questionnaire survey (January, 1956). Major effort was being directed to the equalization phase of the program and to the preparation of assessment manuals. There was as yet no field staff to aid and supervise local assessors and no provision for state sharing of the costs involved in the reappraisal program. The state does not have authority to order a district to conduct a reappraisal.

Arkansas' statutory standard of value

TABLE II  
MAJOR CHARACTERISTICS OF REAPPRAISAL PROGRAMS IN FIVE SELECTED STATES

State	Date Present Program Began	Present Status of Program	Assessment Standard		Nature of State Supervisory Functions	State Sharing of Cost of Program	Reappraisal Powers of the State Where Local Officials Fail to Act
			Statutory	Actual			
Colorado	1947	Basic reappraisal completed in 1952. Maintenance program since. No change made in 1955 county assessment abstracts.	Full cash value.	1941 cost basis—about 40% of present day value.	Assessment standards prescribed in appraisal manual. Field staff of 10 to aid local assessors and see that they comply with requirements of appraisal manual.	State bears cost of supervision.	State may conduct reappraisal, but power has not been exercised.
Idaho	1954	23 counties completed, 3 in process, 7 to begin in 1956 and 11 in 1957. All to be completed by 1961.	Full cash value.	County opinion on % of full value until program completed.	State has field staff of 12 to aid and supervise local assessors. Staff trains local personnel and checks every two weeks in the field on the quality of appraisals.	State bears cost of appraising all commercial buildings & cost of training and supervisory work.	State may conduct reappraisal, but power has not been exercised.
Kentucky	1949	17 counties completed and 3 in process. Future policy not determined by new administration.*	Market value.	State average of about 35% of market.	State has field staff of 11 to aid and supervise local assessor. Also contracts with counties to conduct reappraisals. Annual assessment ratio studies check quality of assessments.	State bears major share of contract reappraisal work cost & cost of supervisory work.	State may order reappraisal at county's expense. Power has been exercised on 4 counties, one at local expense and 3 at state expense.
Oregon	1951	7 counties completed and 13 underway. State one-third completed, and scheduled for completion in 1961.	True cash value defined as 80% of market for 1956; 100% after 1961.	True cash value.	Assessment standards prescribed by price lists, manuals, etc. 50 field workers aid and supervise local assessors. State contracts with counties to conduct reappraisals. Work checked by sales analysis and check appraisals.	State bears half the cost of contract reappraisal work & cost of supervisory work.	State may reappraise or order districts to do so. Former has not been exercised; latter has been done for limited areas or classes of property.
Utah	1954	All agricultural land completed, buildings 30% completed and city and town lots 70% completed.	40% of reasonable fair cash value.	.....	Assessment standards prescribed by price lists, manuals, etc. Staff of 18 field workers aid and supervise local assessors. State contracts with counties to conduct reappraisals. Work checked by field inspections, and checking computations.	State bears own payroll and cost of forms on contract reappraisal work and cost of supervisory work.	State may conduct reappraisal, but power has not been exercised.

\* In the November, 1956 issue of the Federation of Tax Administrators' *Tax Administrators News* it was reported that the Kentucky Revenue Commissioner favors removal of that state's power to supervise local assessments and tax rates.

calls for assessment at that percentage of full value that is prescribed by the public service commission. This has been established in actual practice at 20 per cent of full value.

*Iowa.*—The current program had its beginning with 1947 legislation which strengthened the supervisory powers of the state tax commission and instituted an appointive county assessor system. The state's 99 county assessors have since been selected from eligibility lists certified by the state tax commission after an examination of all candidates, and the assessors for the 21 cities of over 10,000 population are appointed subject to tax commission approval.

Iowa's questionnaire reply indicated that the state's reappraisal program is in continuous operation with reappraisals being ordered whenever such action is deemed necessary. It was stated that while such orders have been issued frequently in the past the exercise of this authority is no longer necessary. The commission has a field staff of three for aiding and supervising local assessors. In performing its supervisory functions, the state prescribes forms and assessment rolls for local use and requires all counties to provide the commission with detailed reports on assessments by property class. The quality of local assessments is checked by assessment ratio studies. The cost of the reappraisal program is borne locally, except for the expense of the commission's supervisory staff. Iowa's statutory assessment standard is 60 per cent of actual value, but in practice about one-third of market value has been used.

*Maryland.*—Beginning in 1955, the tax commission is empowered to enforce annual reappraisals in every county. The chief supervisor of assessments and two new deputies will spend their full

time aiding and supervising local assessors in their reappraisal activities. However, this does not fully reveal the role of Maryland's tax commission in the state's reappraisal program. Maryland's situation is unique in that each county (and Baltimore City) has a county assessor and a supervisor of assessments, with the latter appointed by the tax commission. Both officials take their orders directly from the commission and can be dismissed only by the commission. The state reimburses the counties for half of their salaries. The commission thus has more direct authority over local assessors than is usually the case. The quality of local assessment is checked by assessment ratio studies.

*Montana.*—The state's attempt at development of a reappraisal program has been held up because the state board of equalization has been enjoined from ordering work to begin. The board's supervisory function is largely confined to approval of assessment standard schedules prepared by local assessors and enforcement of their use. There is no staff engaged in aiding and supervising local assessors in the field, and the state does not share in reappraisal costs.

*New Mexico.*—The 1955 legislature enacted laws aimed at the development of a state-wide reappraisal (and equalization) program. At the time of the questionnaire survey the program was in its beginning phase, with the state tax commission in process of establishing valuation standards which county assessors will be required to follow. The commission will check on the quality of work done by means yet to be developed. These will probably include sales ratio checks and check appraisals, although at the present time no funds are available to the commission to hire a staff for such purposes. For the time

being, therefore, chief responsibility for carrying out the program rests with the county assessors. The commission has requested that county assessors aim at completing the major part of the work by the close of the 1957 assessment period.

The New Mexico constitution provides for uniform assessment in proportion to value; the commission has established one-third of sound value as the standard to be used by county assessors. The questionnaire reply indicated that the commission has authority to reappraise any assessment district, or to order its reappraisal, but noted that this power has seldom if ever been used in the past.

*Ohio.*—The reappraisal program is part of the state's overall program of equalization. While the division of county affairs does not prepare assessment manuals, price lists, etc., for the local assessors' use, the county assessors are directed to prepare for their own use assessment standard schedules made up in conformity with local prices of materials and wage rates and the local selling prices of the various types of property. The division does not have a staff to aid and supervise county assessors in the field, but it does maintain a continuous sales-ratio program and makes spot-check appraisals in each of the state's taxing subdivisions. The state does not share in local reappraisal costs.

The statutory assessment standard in Ohio is true value in money; the standard in actual use has been established at 50 per cent of sound value. The board of tax appeals has authority to order any taxing district to conduct a reappraisal, and has issued formal orders on approximately ten occasions in the last five years. It is pointed out, however,

that the issuance of one formal order often results in compliance with the statutory requirements by surrounding counties without a formal order.

*Virginia.*—The department of taxation's reappraisal program is essentially a voluntary advisory service inasmuch as the state has no equalization powers nor does it have the power to order reappraisals. The state prescribes and furnishes the land books and the various forms used for assessment purposes. A major part of its advisory service is the securing and training of otherwise qualified appraisers for employment as appraisal technicians by localities undergoing a reappraisal. Technical supervision over these men is exercised by the department; about 40 are now employed in the service of Virginia counties and cities. The scope of the advisory aid and assistance program is indicated by the fact that since the program's inception in 1946, 77 of Virginia's 98 counties and 24 of the state's 32 cities have voluntarily requested and received full advantages of the services offered.

Virginia's constitution calls for assessment at fair market value. However, there is no uniformity in the actual standard used by the various taxing jurisdictions; the percentage of actual value used as a standard is a matter of local option.

*Washington.*—The reappraisal program is based on 1955 legislation; at the time the questionnaire was circulated it was in its beginning phase, with state-wide reappraisal scheduled for completion by June 1, 1958. The tax commission's field staff of four or five men engaged in aiding and supervising local assessors was in the process of being expanded. Under the new statute the commission contemplates a program for use of state staff in reappraising counties

on a contract basis, with the state bearing 50 per cent of the cost involved. Work of local assessors was scheduled to be checked by use of sales-ratio analysis and check appraisals.

Washington's statutory assessment standard is 50 per cent of true and fair value in money, but the standard in actual use varies among the counties with most of them using 20 to 25 per cent. Recent legislation has provided the commission with power to order reappraisals at the taxing district's expense, but this power has not been used as yet.

*Wyoming.*—The board of equalization employs two appraisers to aid and supervise the work of local assessors in the field. The questionnaire reply indicated that in its present program reappraisals have been completed on improvements on town lots and most industrial plants, and the town lot program is now in progress.

The state's statutory assessment standard is fair value, but a level of 25 to 30 per cent of current value has been in effect for many years. The state has power to order reappraisals, but none has been issued to date.

#### *Specific Assessment Aids*

The questionnaire replies indicated that most of the 42 states that participated in the survey, including a majority of those not currently engaged in a state-directed equalization or reappraisal program, provide local assessors with one or more of a wide variety of services aimed at improving the quality of assessments. While space does not permit a state-by-state review of the aids provided, the following summary, which groups them in ten categories, gives a general picture of the types of aids available and the prevalence of their appearance in the supervisory programs of

the reporting states.

*Assessment manuals.*—Twenty states prepare and distribute one or more assessment manuals. These range from relatively brief explanatory handbooks on the assessment process to detailed manuals on the assessment of real property and on each of the more important categories of personal property.

*Other publications.*—Sixteen states distribute to local assessors one or more publications such as monthly newsletters, special bulletins on matters of interest to assessors, property tax rules and regulations, analyses of new statutes, summaries of court decisions and attorney general opinions, annotated copies of the property tax code, and assessor school proceedings.

*Forms.*—Eighteen states prescribe various forms for use by local assessors, and in many cases furnish the forms either at state expense or at cost. These include real property record and description cards, assessment rolls, personal property listing sheets and abstracts for reporting assessed valuations, among others.

*Assessment systems.*—Four states provide localities with assistance in setting up assessment systems and procedures. This includes, of course, all the forms needed for carrying out the assessment function.

*Personal property price lists.*—Eleven states prepare and distribute price lists on one or more types of personal property (automobiles, farm livestock and machinery, stocks and bonds, etc.)

*Building cost schedules.*—Four states make available building cost indices and schedules. These four states are in addition to those where the assessment manual includes such data.

*Mapping service.*—Twelve states provide local assessors with tax map speci-

fications and/or prepare the maps, either at state expense or at cost. This service in some cases includes aerial photography and a tracing service.

*Assessor schools.*—Twenty-one states conduct schools for assessors, either annually or on a periodic basis. Several of the states hold regional as well as state-wide schools.

*Field training.*—Sixteen states, in addition to holding assessor schools or in lieu thereof, have developed programs for assessor training in the field. Some of the states require each assessor to consult annually with members of the state's property tax supervisory staff.

*Assistance on special types of property.*—Twenty states provide local assessors with assistance in appraising types of property, the appraisal of which requires a high degree of competence. Commercial and industrial property, utilities, oil and gas deposits, and mining property are most frequently listed in

regard to this type of service.

### *Conclusion*

It would be rash, no doubt, for one investigating by questionnaire and correspondence, to go beyond a summary of the factual data in this study. This much, however, might be said in conclusion: the equalization of assessments is and will be a continuing problem, and its effective performance will require adequate money, competent staff, and sophisticated use of new techniques. The property tax, at least where it is used to finance several layers of government, requires state participation. Certainly, sufficient progress has been made in the past decade to support the optimistic conclusion that the property tax can be administered tolerably well if those concerned have the will to make the attempt and are willing to pay for the job.



## THE ROLE OF THE STATES AND LOCAL GOVERNMENTS IN NATIONAL FISCAL POLICY

EUGENE A. MYERS AND RANDALL S. STOUT \*

IN the Employment Act of 1946 Congress recognized, among other things, the importance of state and local governments in carrying out national economic policies. Thus Congress deemed it necessary to employ in that Act the assistance and cooperation of these governmental units in . . . "promoting free competitive enterprise . . . and promoting maximum employment, production, and purchasing power."<sup>1</sup> If national fiscal objectives are to be achieved, state and local financing must be in harmony with federal policies and must make positive contributions in stimulating private business in depression periods and in reducing inflationary tendencies during boom periods.

Local governments, and to some extent states, find it difficult to pursue anti-cyclical policies because of their large numbers, their limited borrowing powers, the narrow range of their taxing powers, and the fact that many of them follow taxing and spending programs in a highly independent and uncoordinated pattern. Yet because of the magnitude of their expenditures and tax

collections, state and local fiscal policies should be compatible with those of the federal government. For example, in 1956 state and local governments will spend approximately \$33 billion. This is approximately one-third of all governmental expenditures or one-half of the amount that will be spent by the federal government in the same fiscal year. Three decades ago, state and local expenditures exceeded those of the federal government, but the total sums collected and spent were small compared with the giant budgets of today. Moreover, at that time there was no determined effort on the part of the federal government to practice fiscal policies within the framework of our present understanding.

Thus, the very weight of the taxing and spending of the states and localities makes it obvious that their fiscal policies can actually negate efforts of the federal government to counter cyclical fluctuations in business. The cooperation of the states and their local units with the federal government is very important in achieving desirable national policies leading to economic stability.

### *Obstacles to the Pursuit of Effective Fiscal Policies*

There has been a tendency for state and local revenue and expenditure programs to accentuate business fluctuations, rather than to offset them. This

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<sup>1</sup> See: J. A. Maxwell, "Intergovernmental Fiscal Devices for Economic Stabilization," (Papers submitted to the Subcommittee on Tax Policy), Joint Committee on the Economic Report, 84th Congress, 1st Session, Nov. 9, 1955, pp. 807-817.

failure of state and local financial operations to contribute toward national economic stability is attributable to several factors and conditions, some of which, it should be observed, are beyond control of the state and local authorities.

(1) The character of certain state and local services is such that the demand for the services bears no direct relation to changes in the business cycle. Expenditures for education depend primarily upon the school population and the quality and amount of instructional service, rather than upon conditions of prosperity or depression. Likewise, welfare expenditures for institutional care, hospitals, special types of aid (excluding unemployment benefits) are to a great extent unrelated to changes in economic conditions. Because of the character of many of these services, expenditures to maintain them cannot easily be cut back during boom periods when such reductions would be desirable as an anti-inflationary measure. Instead, in boom periods localities may have great backlogs of needed capital projects, as was the case at the end of World War II.

(2) Local and some state revenue structures particularly lack elastic revenue sources which would give them some counter-cyclical characteristics. The more elastic type revenue sources include levies on net income, general sales or gross receipts. The present high level of federal tax rates on personal income, corporate income, and certain commodities prevents states and localities from using these revenue sources more extensively.

(3) Constitutional and statutory restrictions on borrowing and tax rates prevent flexibility in fiscal operations, and also prevent use of counter-cyclical

methods of financing. A constitutional amendment permitting borrowing is required in 20 states, and a popular referendum is required in 20 other states. Limitations on state property tax rates are found in 12 states, while limitations on property taxes in local governments are found in all but the New England states and Maryland. These restrictions are formidable barriers to the expansion of expenditures in terms of business recovery and stabilization devices.<sup>2</sup>

(4) Further, some states lack flexibility in their fiscal structures because substantial expenditures are rigidly established at certain levels by constitutional provisions or continuing appropriations. An outstanding example is the State of California in which more than 65 per cent of the 1955-56 General Fund expenditures is rigidly established by these provisions.<sup>3</sup>

(5) The states also lack flexibility in their fiscal structures because of widespread practices of earmarking revenues by means of constitutional or statutory provisions. A recent survey of these practices by the Tax Foundation shows that in the fiscal year 1954, 50 per cent of total state tax collections in the United States was earmarked for expenditure only on designated functions.<sup>4</sup> Earmarking of revenues is particularly undesirable because it reduces the policy-making powers of legislative

<sup>2</sup> See: Tax Foundation, *Constitutional Debt Control in the States*, Project No. 35 (1954). James A. Maxwell, *Fiscal Policy*, Henry Holt Co. (1955), pp. 148-150. Council of State Governments, *Public Authorities in the States* (1953), pp. 9-21.

<sup>3</sup> State of California, Budget for Fiscal Year 1955-56 (Summary), p. xii.

<sup>4</sup> The Tax Foundation, *Earmarked State Taxes*, Project No. 38 (1955). In Alabama, Colorado, Kansas, Louisiana, New Mexico, and Texas over 75 per cent of 1954 tax revenues was earmarked.

bodies by removing certain activities from periodic review and control. These practices make it difficult for the legislatures to adjust finances to meet changing conditions. In some instances, expenditure programs may be thrown out of balance, and certain functions inadequately supported, because of rigid allocation of revenues through the earmarking process.<sup>5</sup>

(6) Poor and inadequate administrative methods prevent the achievement of desirable fiscal objectives and result in a low level of governmental performance. The lack of equalization of property assessments and poor operation of the property tax are examples in this case.

#### *Objectives of State and Local Fiscal Policies*

The components of fiscal policy for state and local governments which would contribute to economic stability and full employment are:<sup>6</sup>

(1) a desirable pattern of public expenditures involving:

- (a) a degree of flexibility which will permit counter-cyclical expenditures to offset in part contraction or expansion of business activity in the country generally;
- (b) a minimum level of government services throughout the nation which will insure a healthy, well-educated and equipped population capable of fully utilizing the country's resources.

(2) a tax system which is flexible in the same respect as the pattern of expenditures, and which is neither restrictive nor likely to distort seriously the allocation and use of business resources.

In carrying out the above objectives, it follows that government services must be provided with the greatest possible efficiency and at the lowest possible cost consistent with adequate quality of services. The tax system must be economically administered and should be as equitable as possible.

#### *Means of Strengthening the Role of States and Local Governments in National Fiscal Policy*

(1) It has been asserted that states and local governments have failed to solve their fiscal problems and to pursue their proper role in fiscal policy because they have not removed constitutional and statutory limits on borrowing power and the use of taxes. There is the further contention that these rigid limits have circumscribed their freedom of action, forcing them to turn to the federal government for assistance.<sup>7</sup> Some students of the problems have suggested the substitution of flexible state administrative controls for rigid debt limits, as a step in the direction of enabling them to engage in counter-cyclical financing methods involving the use of budgetary surpluses and deficits.<sup>8</sup> It would appear that a proper solution would involve liberalization of these restrictions, rather than wholesale abandonment in favor of administrative controls. Constitutional and statutory limits on borrowing and taxation have

<sup>5</sup> See: Michigan Legislative Interim Tax and Revenue Study Committee, *Michigan Tax Survey* (1952).

<sup>6</sup> Board of Governors, Federal Reserve System, *Public Finance and Full Employment*, Postwar Economic Studies No. 3 (1945), pp. 122 ff.

<sup>7</sup> The Commission on Intergovernmental Relations, *A Report to Congress*, June, 1955, p. 98.

<sup>8</sup> Mabel Newcomer, "State and Local Financing in Relation to Economic Fluctuations," *National Tax Journal*, Vol. VII, No. 2 (June, 1954), p. 109.

provided American governments with a framework in which they could conduct their fiscal affairs on an economically sound basis, and the excellent financial status of these units is evidence of the fundamental propriety of these limitations. The solution, therefore, entails a modernization and liberalization of restrictions in order to provide adjustment to present-day requirements, but the basic restrictions should remain.

(2) Some machinery should be provided for the coordination of the expenditure programs of authority corporations with those of regular political jurisdictions. Coordination is necessary in order to avoid possible undesirable consequence of too much spending by too many authorities. It is further desirable in order to avoid weakening of legislative controls over major functions, thus creating discord in over-all public policy. In addition, too much authority financing would tend to shift an undue burden of support from general tax sources to special user charges.<sup>9</sup>

(3) Local taxing powers should be broadened, consistent with the development of a sound state-local fiscal structure. The state legislature should define uniform tax bases for the use of municipalities.

(4) There should be a more extensive use of elastic-type revenue sources. This would provide for a greater diversity of revenues and would give some counter-cyclical characteristics to the tax structure.

(5) A greater use of tax supplements would strengthen local revenues and at the same time achieve some measure of tax coordination. The Chicago general sales tax and those adopted by Illinois

municipalities are examples of this type of device.<sup>10</sup> Other types of supplements could include business licenses and levies on income.

(6) The use of tax exemptions should be reduced, including those designed to stimulate new industries. The available evidence indicates that various types of tax exemptions tend to distort the tax structure, result in inequities in tax burdens, and have relatively little significance in influencing the location of new industries.<sup>11</sup> The disadvantages of exemptions appear to outweigh the advantages in the over-all fiscal structure.

(7) Some state technical assistance with the operation of the property tax appears to be a desirable method of obtaining improvements in the operation of this levy.

(8) Although tax stabilization reserve funds are relatively new devices, they appear to be worthy of some consideration as a means of stabilizing state and local revenues. California and New York have used such reserve funds for almost a decade. California's Revenue Deficiency Reserve Fund (the so-called "Rainy Day Fund") was established in 1946 to serve as a cushion against possible declines in General Fund revenues, and is also available for disaster relief expenditures. The Tax Stabilization Reserve Funds in New York were established by constitutional provisions in 1946. Although past experience indicates that these funds

<sup>10</sup> The Municipal Finance Officers Association of U. S. reported that as of October 12, 1955, approximately 408 Illinois local governments had imposed general sales taxes on the same base as used for State purposes.

<sup>11</sup> See: William D. Ross, *Louisiana's Industrial Tax Exemption Program*, Louisiana Business Bulletin No. 2, Vol. 15 (December, 1953), Louisiana State University. See also: H. M. Groves, *Postwar Taxation and Economic Progress*, McGraw-Hill Co. (1946).

<sup>9</sup> Council of State Governments, *Public Authorities in the States* (July, 1953), p. 113.

could meet only small revenue deficiencies in general funds, it is believed that they can be of some assistance in achieving revenue stability.<sup>12</sup>

(9) It is important that states and their local subdivisions prepare long-range plans for financing their capital expenditure programs. These plans involve accumulation of revenue surpluses (where legislation permits), management of debt and changes in tax rates so that state and local expenditures may be provided on a stable or expanding basis through periods of business fluctuations. This requires an improvement in the planning and timing of capital project expenditures. At the state level, centralized planning of such projects is desirable. If not performed by a single agency, some degree of coordination could be achieved among the major departments. The coordination of capital project expenditures has the added advantages of assuring priority for needed projects and the reduction of competition between agencies for individual projects.<sup>13</sup>

<sup>12</sup> It has been estimated that the California Revenue Deficiency Reserve Fund could offset only a reduction of approximately 10 per cent in general fund revenues.

<sup>13</sup> A small unit dealing with coordination of public works projects on all levels of government was set up by the Council of Economic Advisors in 1954, and in 1955 this unit was transferred to the White House Office under a special assistant to

### Summary

Broad legislation calling for concerted action on the part of the federal, state and local governments respecting fiscal policies has been in effect since 1946. State and local fiscal policies have fallen short of being even nearly harmonious with those of the Federal government because of their structure, assigned functions, and their unwillingness to take bold steps in their tax policies and financial practices. Yet economic stability requires the coordinated efforts of all levels of government. The remedy lies not in abandoning constitutional and statutory restrictions now in effect on state and local governments, but in making these restrictions less rigid, and in making more effective use of existing fiscal policy devices such as budgetary controls, tax stabilization reserve funds, and others. Additional coordination among the various spending agencies of the states, the enactment of broad based taxes where they are needed, and above all, long range planning based on the deep belief in the virtues of anti-cyclical policies, are needed to provide the coordination between state-local policies and federal policies and the continuing prosperity contemplated by the Employment Act of 1946.

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the President. See: *The Economic Report of the President*, January, 1956, pp. 61-63.

## SOME ECONOMIC ASPECTS OF TWO ADMINISTRATIVE METHODS OF ESTIMATING TAXABLE INCOME

AMOTZ MORAG<sup>1</sup>

THE purpose of this paper is to examine some of the economic consequences of two administrative methods of estimating taxable income. These two methods, the net worth method and the presumptive method, if broadly defined, cover almost all possible techniques of estimating taxable income when reliable taxpayers' records are not available. The following evaluation of these methods will not be on administrative grounds, where both are "inefficient"; the net worth method is extremely expensive in terms of man hours, and the presumptive method results at best in a rough approximation.<sup>2</sup> In spite of their administrative drawbacks, however, tax administrators have to use one of these methods when direct information from the taxpayer is unavailable or unreliable, for, to repeat, there are no alternative methods. A limited and auxiliary use of these meth-

ods only as internal techniques of an audit department in an internal revenue office might not have important economic effects. An extensive use of these methods, however, might turn helpful techniques into integral parts of the taxation system, and thus modify the system's economic impact.

For lack of reliable taxpayers' records, these methods of assessing taxable income are widely used in underdeveloped countries, and this paper was written with conditions in those countries in mind. It is left to the reader to decide which of its parts may be relevant to particular countries.

### *The Net Worth Method*

A tax administrator, like any other administrator, should be efficient. It is well known that a badly administered tax, whatever its "intrinsic" merits, is a bad tax,<sup>3</sup> and that improvements in the administrative mechanism of tax collection might very often prove to be more important than an amelioration in the statute-book structure of the tax system. For underdeveloped countries with pressing needs for more revenues to finance their development expenditures, a more efficient tax administration is a necessity. Yet a complete annihila-

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<sup>2</sup> For details of the net worth method and the presumptive method, see preliminary draft of *Manual on Income Tax Administration*, mimeographed, International Program in Taxation, Harvard Law School, 1954, chap. 4.

<sup>3</sup> What a bad administration can do to a bad tax is an interesting problem; possibly it could improve its economic impact.



tion of tax evasion, under the conditions prevalent in most of these countries, is quite impossible to achieve. Naturally, a more humble goal is set, and the revenue collectors do their best. From their point of view, evasions are equally bad; so, naturally, they will attack first those evasions that are the easiest to discover. It is not suggested here that this position is wrong. As revenue collectors they should be concerned only with the revenue aspect of taxation; they should do all they can to implement the revenue policies of the government, not meditate on their wisdom.

But taxes have other aspects besides the revenue aspect, namely, an effect on the spending of the private sector. Because of this aspect of taxation, it is as important to know what is done with the tax-evaded income as to know how much tax is evaded. If, for example, all tax-evaded income could be channelled permanently into the stockings of thrifty housewives, the problem of tax evasion would lose most of its economic importance,<sup>4</sup> though tax administrators as such would not become happier. It is clear therefore that the channels into which tax-evaded income is directed are of grave economic importance. However, if all possible channels towards which tax-evaded income would be directed were equally undesirable from an economic point of view, or if all of them could be blocked effectively, this channelling aspect of tax evasion would still be comparatively unimportant; the administrator's function, that is, to prosecute culprits wherever they are found, would be correct from any point of view. This, unfortunately, does not

seem to be the case, and therefore it is a relevant economic question to ask whether the closing of some channels for tax-evaded funds would not divert at least some part of these funds into other channels which not only are more difficult to block effectively but are economically less desirable. Obviously, there is no necessity for concluding that the most easily blocked channels are also the least desirable.

The net worth method attempts to check tax evasion by comparing a taxpayer's declared income of a certain year to the sum of his net additions to net worth.<sup>5</sup> An excess of living expenditures plus additions to net worth over declared income establishes a *prima facie* case for investigating tax evasion. Thus the principle of this method is very simple, though its application is very difficult since it implies estimations which are as hard to get as an estimation of taxable income itself.

It is obvious that the additions to net worth are smaller, the greater is the sum of the values of capital at the beginning of the period under review, and the smaller it is at the end. An adroit tax evader will do his best to mislead the tax administrator by overestimating the former and underestimating the latter. The problem of overestimating net worth owned at the starting point of the application of the net worth method is widely recognized; yet the taxpayer can do so only once, *i.e.* in the first year of the operation of the net worth method, and he will do so only to a limited extent lest he be accused of past evasions from income tax.

The problem of underestimation of net worth at the end of the period under

<sup>4</sup> As a matter of fact such permanent hoarding of tax-evaded income is economically equivalent to paying 100 per cent rate of tax on this income. The problem of tax evasion would become, in this case, a problem of equity only.

<sup>5</sup> The different forms of the net worth technique are explained in detail in *Manual on Income Tax Administration*, preliminary draft, chap. IV, pp. 14-30.

review seems to be more serious. If the taxpayer is honest, the net worth method is a waste of time; if he is not, his possibilities to continue evading the tax by underestimating his net worth at the end of the period are great indeed. The tax administrator should, of course, check the truthfulness of the information given; the tax evader, on the other hand, knows that this checking process will follow, so the reliability of his data is probably well correlated to the feasibility of checking them. He is well aware, for example, that it is rather easy for the tax administrator to find out how much real estate he acquired during the period under review, but it may be much more difficult to ascertain, say, how much foreign exchange he purchased. He might as well impress the tax administrator by the accuracy of his estimates of his "checkable" expenditures and completely mislead him in the information supplied on non-checkable or hard-to-check expenditures. Moreover, and this is an important point, he might change the pattern of his expenditures accordingly. In the previous example, the tax evader might cut his expenditures on acquisitions of real estate and increase his purchases of foreign exchange.<sup>6</sup> He might even go further and sell his real estate and buy foreign exchange with the proceeds, and thus be able to "prove" a net decrease in his

<sup>6</sup> Indeed, the slump in the Israeli real estate market is ascribed, among other reasons, to fears of potential buyers of real estate that by acquiring real estate, the transfer of which must be officially registered, past evasions from income tax might be discovered. On the other hand, it is commonly believed in Israel that one of the more important reasons for the great success of the constant-purchasing-power bonds issued in 1955 by the Israel Electrical Corporation is that, with the approval of the Treasury, taxpayers will not have to include the interest earnings from these bonds, from which 25 per cent income tax is deducted at the source, in their income tax declarations.

net worth which will support his contention that he paid all taxes due.

Estimation of the sums spent on living expenditures is, admittedly, very difficult to accomplish.<sup>7</sup> It involves questions that are necessarily personal and, therefore, "it is the area of investigation which is most likely to be resented by the taxpayer."<sup>8</sup>

While some checking on the figures for living expenditures is definitely possible, though irritating for the taxpayer, there are good reasons to believe that this channel for tax-evaded income will remain partly open. The same is true of transactions in personal property, tangible and intangible. Purchases of jewelry, for instance, are hard to discover if there is any attempt to conceal them.

As already implied, data on transactions in real estate and equipment are not outside the reach of a moderately efficient tax administration. Such data will probably be reasonably accurate, since there is only a limited range for collusion between seller and buyer, especially if capital gains are taxable.<sup>9</sup> Moreover, depreciation allowances and other deductions from gross income for income tax purposes make it costly to conceal such acquisitions.

The only source of information on

<sup>7</sup> Cf. *Manual*, chap. 4, p. 23.

<sup>8</sup> *Ibid.*, p. 23.

<sup>9</sup> If capital gains are taxed, but at a lower rate than other incomes, both the buyer and the seller of non-personal property are confronted with contradicting interests. The seller is interested in inflating the selling price of the property if he is concerned that a net worth check might otherwise indicate previous tax evasions on his part. But, at the same time, it is to his interest to deflate the selling price in order to minimize his capital gains taxes. The buyer's interests are the reverse, yet contradictory nevertheless. The direct capital gains aspect of the declared purchase price probably outweighs the indirect net worth aspect.

the amounts of cash holdings of a suspected taxpayer seems to be his own statement, which is no more reliable than the person supplying it. Very little can be done to block this channel for tax-evaded income, and, fortunately, except from the important point of view of tax equity, very little need be done. To the extent that these hoardings are of local currency, they are more than desirable in an economy which suffers from inflationary pressure due, say, to expanded government expenditures on development or defense and, in part, also to tax evasion itself. Unfortunately, however, the very inflationary pressure which makes hoardings socially desirable makes them at the same time non-profitable. If it is strong, it will encourage most people to get rid of their local currency hoardings as soon as possible. In other words, this hoarding channel for tax-evaded income is relatively desirable, impossible to block, but not particularly important. Private hoardings of gold and foreign currency, on the other hand, may be very important; even where they are illegal, they may create quite a problem, but they too are very hard to check.<sup>10</sup>

Illegal transactions in foreign exchange might serve as an example of the

possible effect of a rigorous application of the net worth method which might result in a successful blocking of the "checkable" channels only. When the expenditure itself is illegal, it certainly would make little difference to a person that, if caught, he might also face accusation of tax evasion. The illegal channels are hard to check, otherwise they would not have survived, and there is no doubt that they might gain in relative importance if other channels were blocked.

It seems therefore that the investment channel for tax-evaded money is easiest to block, and the consumption and hoarding ones most difficult. This is certainly neither a pleasant nor an encouraging state of affairs. It is the declared policy of underdeveloped countries to encourage investment and discourage consumption. Taxwise, this policy is exemplified by costly provisions for accelerated depreciation, investments credits, and so on. It is therefore worth emphasizing that the net worth technique could unintentionally operate in the other direction.

The net worth method of estimating taxable income is a logical derivation of the net accretion definition of income,<sup>11</sup> and it is as far removed as possible from Fisher's definition of taxable income, as expenditures on consumption.<sup>12</sup> Interestingly enough, Fisher's definition, which might serve the purposes of underdeveloped countries better than any other, is usually discarded because of the important administrative objection that its application requires information

<sup>10</sup> It is, of course, quite impossible to obtain any reliable information on the amount of bank deposits of a taxpayer if the principle of secrecy of bank deposits is adhered to. Thus, the first question that should be faced is this: How sacred is this principle? An argument is possible that, once a banking system is established, the principle of their secrecy is not vital for its further thriving. This may be true, but in many underdeveloped countries the banking system is very young and undeveloped. These countries are interested in developing their banking system and should certainly be ready to pay a price in order to achieve this aim. It does not necessarily follow that the principle of secrecy of bank accounts should be a part of this price in all cases, although it may be in some instances, especially if the confidence and attitude of most citizens would be greatly disturbed by non-secrecy.

<sup>11</sup> Cf. R. M. Haig, *The Federal Income Tax* (New York: Columbia University Press), chap. 1.

<sup>12</sup> For a strong case for an adoption of this definition in practice see Nicholas Kaldor: *An Expenditure Tax* (London: Allen and Unwin, 1955).

on net worth.<sup>13</sup>

### *The Presumptive Method*

The presumptive method of estimating taxable income is much more widely used than the net worth method. It is also less of a method, being mainly a guessing game organized according to variable rules. Sometimes the guides for the guesses are "the size and location of a business or the number of employees or vehicles."<sup>14</sup> Sometimes "the evidence of the private style of living of the person concerned is taken as the principal criterion."<sup>15</sup> Often, as in the so-called presumption-by-class method,<sup>16</sup> a formula is derived somehow and applied to some classes of taxpayers.<sup>17</sup> Usually many presumptive principles

are involved in an assessment.

Some examples of the actual application of the presumptive method may be useful.<sup>18</sup> In Brazil the income of an agricultural enterprise is estimated to be 5 per cent of its value. In Chile, the assumptions of the presumptive method indicate that agricultural investments are much more profitable, for income from agricultural properties is presumed to be 10 per cent of their value. The lower limit of the estimated yield of capital invested in non-agricultural enterprises in Chile is 10 per cent of the capital invested or 6 per cent of the gross sales. Brazil's non-agricultural investments, on the other hand, are the more profitable ones, since the estimated yield of corporate bodies which maintain no adequate records is 30 per cent of their assets, or from 15 per cent to 30 per cent of their gross profits. Mexico has a schedule of presumptive rates of yield: metallurgical mining concerns are presumed to have profits of 20 per cent of their invested capital; manufac-

<sup>13</sup> It should be made clear, however, that the nature of the information about net worth needed for the purposes of an expenditure tax is quite different from that needed for checking income tax declarations by the net worth technique.

<sup>14</sup> *Manual*, chap. 4, p. 5.

<sup>15</sup> *Ibid.* In this case the difference between the net worth method and the presumptive method is blurred.

<sup>16</sup> *Ibid.*, pp. 6-7.

<sup>17</sup> "For example, in one country it is assumed that the inventory of certain classes of merchants turns over three or four times a year and that the taxable profit is fifteen percent of the value of the inventory at hand . . ." "Again, the approach is by type of trade, e.g. grocer, pharmacy, etc. This method assumes that one or two traders in each locality maintain records from which reliable figures of profits can be obtained. These profits, thus ascertained, are then expressed as a percentage of, let us say, the capital of the business. In other words, the income of a particular business is equivalent to the determined percentage of its capital. Where reasonably reliable figures of capital are not available, a factor arrived at in much the same way can be calculated to give the relationship between profits and, for example, the value of the property occupied by the business or the amount of inventory on hand at any time. There are many possible variations." *Ibid.*, pp. 11-12.

The property value method and the yardstick method often used in estimating farming income, are, economically, examples of presumption-by-class. "Under the property value method the value used

for estimating income is the assessed value for the purposes of the tax on property . . . the estimated income is presumed to be a percentage of the assessed value. Where the property tax has an annual income value as its basis rental or other annual income figure which is assumed to accrue to the owner, the taxable income can be estimated as a multiple of this value (e.g. two or three times)." (*Ibid.*, p. 7.) The method "assumes that an appropriate factor can be chosen to reflect the income which might reasonably be expected from land of a given appraised value. . . . The existence of a few reliable farming records can be used to good advantage in arriving at the percentage or factor to be applied to the appraised values under this method." (*Ibid.*, p. 8.) The yardstick method is based on the determination of the yield of a sample of farms. An analysis of such a sample might give the measure of profits earned by the acre or hectare for each of the common crops. "With this information, the profits of other farms in the vicinity can be estimated, once the number of acres or hectares of each crop has been ascertained." (*Ibid.*, p. 8.)

<sup>18</sup> I am grateful to Mr. J. N. Froomkin for these examples.

turers of scientific apparatus, 18 per cent; and glass manufacturers, only 9 per cent. The rate of interest returns on loans is presumed too, and a reasonable rate of interest is imputed to loan contracts which the tax administrator believes to carry an unduly low rate. (But what is a reasonable rate of interest if the rates of yield differ so much among industries?) In Mexico the rate of imputed profits depends not only upon the line of business but also upon its size and its gross sales, although the estimated rate of return does not necessarily rise with a rise in gross sales.

In Israel<sup>19</sup> various presumptive methods are in use, although in most cases the standard presumptive calculations prepared serve only as auxiliary data for the income-assessing officer. Approximately a quarter of the income tax collected from the self-employed is determined by presumptive methods. Different presumptive methods are used for different occupations. For groceries the criteria used are the number of employees, location of the shop, the quality of the equipment, extent of sales on credit, quality of the service offered (orders accepted by telephone, etc.), and so on. For cab-drivers the determining factors are prices charged, estimated mileage, year of production of the car, etc. The number of employees, location, estimated turnover, and age of equipment are among the most recurring criteria.

<sup>19</sup> One of the arguments often heard in Israel against the presumptive methods (the so-called "tahshivim" — standard calculation charts) is that their use tends to discourage wider adoption of bookkeeping, since it does not pay to keep books. If income assessed by the calculation chart is smaller than that which might be determined if records of outgoings and incomings were available, the unprofitability of bookkeeping is obvious; in the opposite case, the income tax assessor is not obliged to accept the taxpayer's supported-by-books income declaration.

### *Economic Implications of Presumptive Taxation*

As rough approximations, presumptive techniques are usually inequitable, for they must underestimate income in some cases and overestimate it in others. Even if correct on the average, and there is no reason why they should be, great problems are created for those whose income has been overestimated.<sup>20</sup> But neither the equity aspect nor many other interesting problems related to presumptive taxation will be discussed in this paper, which is limited to the effects of presumptive methods on tax incentives and on the incidence of the tax.<sup>21</sup>

### *Incentives under Presumptive Taxation.*

—The effects on incentives of an income tax based on presumptive methods are clearer than those of an income tax based on reliable records. This does not mean much, though, for in the latter case it is hard to determine *a priori* what these effects are.<sup>22</sup>

<sup>20</sup> Let us remind the reader of that poor fellow who was drowned in a river, the average of which was only four feet. Most presumptive methods discriminate against below-average firms.

<sup>21</sup> Some miscellaneous questions: Is there no relation between profits and the quality of records kept, and if there is, may the rate of profits of a firm that keeps records be legitimately applied to a firm that does not? Are the income estimates really attempts to approximate true taxable income, or do they include a deliberate discriminative element, *i.e.* if one rate of yield is attributed to one line of business and a different rate to another, does it follow that the administration believes that the actual rates of return are so, or that it wishes to tax one industry more heavily than the other? What are the effects of the presumptive methods on the economic behavior of firms, defining firms to include producing households as well? Is the presumptive method only a rough technique, or does it change the very nature of the income tax? Are the results of economic analysis of income tax based on reliable records applicable to a presumptive method income tax? Is it an income tax at all?

<sup>22</sup> For discussion of this problem, see L. Robbins, "On the Elasticity of Demand for Income in Terms

(See next page)



This indeterminateness depends mainly on the contradictory incentive effects of two aspects of the income tax and on the immeasurability of these effects. By cutting disposable income, the income tax increases its marginal utility and encourages its increase by further effort. At the same time, by absorbing a part of the remuneration for additional effort, the income tax discourages added exertion. It is hard to tell which of the two effects is the stronger, and the relation between the two certainly might differ according to income levels and other circumstances. But it seems reasonable to assume that an income tax would decrease the supply of effort if its marginal rate is quite high while the average rate is not. If, on the other hand, the average rate is high enough to absorb a considerable part of disposable income while the marginal rate is relatively low, the income tax might have a considerable positive incentive effect. This theorem is one of the least controversial in the field of theoretical analysis of incentive effects of taxation.<sup>23</sup> What it means is, obviously, that people will work more when subject to a regressive tax than when the tax is progressive. If the regressive tax is a lump sum tax like a poll tax, that is, when the marginal rate of the tax is zero per cent, the amount of effort supplied will be greater than if no tax were imposed.

A lump sum tax bears some similarities to an income tax based on presumptive methods. For small increases in

income, the marginal rate of a presumptive income tax is ordinarily zero. If a firm is classified as a type C firm, let us say, the amount of its income tax liabilities—as long as it is not reclassified—is almost known to its owner in advance, and in some cases it might also be required to pay it in advance.<sup>24</sup> Its income, though, is not known in advance, and it might well depend on the efforts spent; thus there is a definite incentive effect to increase effort and income. All this is good and well, and the presumptive income tax comes closest to the progressive poll tax which, if practical, would be an excellent tax.

But all this is only in the short run. Once additional income is earned, the recipient faces the problem of how to spend it. Purchasing better living facilities or better productive equipment, employing more workers, or moving the firm to a better location: all might indicate that the total income earned was not a type C income. Such expenditures might be factors leading to a reclassification of the firm, perhaps as a type B firm. If this happens, the tax liabilities of the firm will jump suddenly, so that the marginal rate of the tax, zero in the short run, might even exceed 100 per cent in the long run.<sup>25</sup>

<sup>24</sup> Dr. H. P. Wald informs me that this was the case in South Korea.

<sup>25</sup> Numerically, suppose the estimated income of type C firms is 4000 bancors and that the average rate applicable to it is 20 per cent. The estimated income of a type B firm is 6000 bancors and the average rate applicable is 40 per cent (the marginal rate being 80 per cent). The income of the firm in the example used to be 3900 bancors, but as a result of the incentive effects of presumptive taxation it rose to 5000 bancors; after paying a type C "poll tax" of 800 bancors, its disposable income rose from 3100 to 4200 bancors. But if, in consequence of increased expenditures the firm is classified as a type B firm, its tax liabilities jump from 800 to 2400 bancors, the increase in taxes, is greater than (See next page)

of Effort," *Economica*, Vol. X (June 1930), pp. 123-129; P. W. Paish, "Economic Incentive in Wartime," in *The Post-war Financial Problem* (London, Macmillan, 1950), pp. 252-263; G. Cooper, "Taxation and Incentive in Mobilization," *The Quarterly Journal of Economics*, Vol. LXVI (February 1952), pp. 43-66.

<sup>23</sup> See K. E. Boulding, *Economic Analyses* (N. Y.: Harper, 1948), pp. 773-775.



Thus even if the presumptive method offers some incentives to increased efforts, it supplies at the same time a disincentive to investments and improvements, *i.e.* it encourages the *status quo*. This problem assumes even further importance in light of the crying need of underdeveloped countries for entrepreneurship. The new combinations of factors of production which play such a big role in the Schumpeterian theory of development are, in the context of presumptive taxation, deterred by increased taxes. Innovations imply reclassification and are thus penalized.

*Incidence of a Presumptive Income Tax.*—To prevent misunderstanding, it might as well be stated immediately that the author is rather sympathetic to the theoretical conclusion that, if income is expected with a considerable degree of certainty, the short run incidence of an income tax is on the taxpayer. It might be worthwhile to reproduce parts of Richard Goode's excellent exposition of this point of view, especially since it stresses some arguments which, as we shall see, do not apply to a presumptive income tax.<sup>26</sup>

a) "For competitive industries the view that a general income tax does not affect prices has often been supported by reference to the supposedly crucial role of the marginal firm. Competitive price, it has been said, is determined or at least is equal to, *the costs of the marginal firm which makes no profit.* Be-

cause the marginal firm makes no profit it pays no income tax, and its continued operation and output cannot be altered directly by such a tax. If the output of the marginal firm is not reduced, the output of intramarginal firms and hence the total supply will not be affected.

b) "To complete the traditional doctrine of incidence, it has been pointed out that a tax on net profits of a monopolist will not alter the full monopoly price. If a monopolist takes full advantage of his opportunities, he sets his price so that, demand and cost considered, the excess of his total receipts over costs will be maximized over time. *The net profit tax does not affect costs.* The monopolist will be forced by the tax to share his gains with the state; if he tries to pass on any of his tax to his customers, he will only make matters worse."<sup>27</sup>

c) "From this it follows that, if producers are guided by rational considerations, a tax on profits *at any rate less than 100 per cent* will not directly affect the output they will produce with any given plant and equipment."<sup>28</sup>

d) "It is hard to conceive of a tax on net profits as a cost in any usual sense. *The amount of the tax is not known until after the results of the operations of a fiscal period have been ascertained.* Moreover, the tax, if a cost, is indeed a strange kind of cost. It is a 'cost' *which rises with success but automatically disappears when operations are unsuccessful.*

e) "Even if the corporation income tax is regarded as a cost of production, it is not clear how it enters into price in

1100 bancors, the true increase in income.

Notch problems are usually attributed to ineptly drafted laws. The presumptive method, though, might endow even an innocuous tax with a variety of such problems.

<sup>26</sup> R. Goode, *The Corporation Income Tax* (New York: John Wiley & Sons, Inc., 1951), pp. 47-54. All italics in the following quotations have been added.

<sup>27</sup> *Ibid.*, p. 47.

<sup>28</sup> *Ibid.*, p. 48.

the short run. It can do so *only if businessmen set prices on the basis of a markup of average cost* rather than by trying to equate marginal costs and marginal revenues."<sup>29</sup>

We italicized some phrases in order to clarify the differences between assumptions which are taken for granted in the case of an income tax based on reliable records and the realities of the presumptive methods. For not even one of the arguments presented above holds water if the income tax is presumptively assessed.

The marginal firm analysis does not apply to this case, of course, for the very simple reason that the presumptive method does not recognize the existence of a marginal firm. The marginal firm is by no means the smallest firm, or the firm with the smallest amount of invested capital or inventories; it is not even the poorest firm financially. It is just the least efficient one, and efficiency does not necessarily depend on size or form. There will be marginal firms in Type A and type Z, whatever is the classification system. Under the presumptive method the marginal firm does pay income tax although it makes no profits, and its continued operation and output can be affected directly by the tax.

Goode's second argument is perhaps the most important one and is not limited to the case of a monopoly. The core of this argument is that an income tax cannot affect—disregarding uncertainties—the output yielding the maximum profits. This output is determined by equating the marginal costs of the firm to its marginal revenues. The presumptive method of assessing income, on the other hand, is often based

on the assumption that businessmen do use a sort of markup over average costs. If, as in Mexico, gross sales are the basis for income assessment, then certainly it does not pay anybody to equate marginal cost exclusive of the marginal increase in income tax liability with marginal revenue. The presumptive methods of assessing income must be based on criteria such as the number of employees, location of the business, size of inventories, etc., and thus the income tax is basically a tax on these factors. Its shifting possibilities are not different from those of indirect taxes.<sup>30</sup> Indeed, to mention some more arguments used by Goode, under presumptive taxation the marginal tax rate might exceed 100 per cent, the amount of the tax is almost known in advance, and the tax does not disappear when operations are unsuccessful.

### Conclusion

For an income tax administrator, our criticisms of the net worth and the presumptive methods of assessing income must seem highly non-constructive. These methods are admittedly only poor substitutes to an assessment of true taxable income relying on authentic book-keeping, but they are obviously superior to a completely arbitrary assessment.<sup>31</sup> All that we have to suggest to tax administrators is to take the eco-

<sup>30</sup> If the main criterion of a presumptive method is the number of employees, the income tax has an element of an employment tax. If turnover is stressed, it is closer to a sales tax. If location is an important factor in assessing income, the income tax resembles a property tax. A similarity to excise taxes on equipment would be created if size and quality of plant are the determining factors. Usually a good presumptive income tax would resemble in its effects a mixture of such taxes.

<sup>31</sup> Like the following "assessment" of an Israeli plumber: "800 pounds—a tall healthy man." Such assessments belong to the past.

<sup>29</sup> *Ibid.*, p. 50.

nomic factors mentioned above into consideration. If the net worth method is used, for instance, they should rank the various channels for tax-evaded money according to their economic merits and demerits, and attempt to block first, if possible, the less desirable channels even if they are harder to block. When using presumptive methods, the criteria for determining income should be carefully chosen. Since such methods necessarily turn the income tax into a tax on these criteria, it is at least worth thinking over which criteria are better taxed, say, employment or equipment.

This paper was not intended, however, for tax administrators, since its lesson relates to tax policy. It becomes clear, we think, that most of the theoretical discussions regarding the "welfare" effects of an income tax contrasted to those of an excise tax do not apply to an income tax based on the net worth method; neither do they apply to a presumptive income tax. Such taxes might have strong, though perhaps unexpected, distortive effects on the allocation of resources in an economy. If on welfare grounds such taxes cannot claim superiority over undisguised indirect taxes, and if indirect taxes can achieve at least a moderate degree of progressivity, as they probably can in underdeveloped economies<sup>32</sup> where patterns of expenditures vary considerably from one income group to another, then

the case against the primary reliance of these countries on indirect taxation is considerably weakened. But it could be claimed that, although much inferior to a true income tax, presumptive methods are the necessary predecessor of a true income tax. According to this view, the very imposition of an income tax, although it cannot yet be administered as a true income tax, will pave the way for such a tax by gradually accustoming taxpayers to the maintenance of adequate books.<sup>33</sup> There might be more than a grain of truth in this argument, but if an ordinary income tax cannot yet be effectively and equitably administered, why not devise an income tax better adapted to administrative abilities as well as to economic objectives? The main argument against a partial or full exemption of savings from the income tax is its regressive effect, but if tax evasion is widespread, such treatment of savings does not necessarily involve any revenue loss for the treasury. Instead of again and again considering an amnesty to old tax-evaders so that their money could be productively employed, would it not be better to exempt from taxation some socially desirable additions to net worth?

Instead of blocking some, and not necessarily the worst, channels for tax-evaded incomes, such a method would legally open some channels. The other ones, even if unblocked by administrative measures, might be left unused.

<sup>32</sup> Cf. Richard Goode, "Report of the India Taxation Enquiry Commission," *National Tax Journal*, June 1956, p. 136.

<sup>33</sup> For a different view see fn. 22.

# A NOTE ON R. F. GEMMILL'S ARTICLE, "THE EFFECT OF THE CAPITAL GAINS TAX ON ASSET PRICES"

CHARLES C. HOLT \*

THE situation whose analysis forms the core of Mr. Gemmill's paper is a complex one involving four different price quotations for a security at four different points in time. The technical note at the end yields an algebraic expression whose interpretation is something less than obvious. With a little further refinement, however, the relationships become much clearer. Instead of using  $Q$ , the short term decrease in price, define the corresponding price,  $L$ , equal to  $1 - Q$ . Instead of restricting the market price to unity, let it be  $M$ . Now by manipulation of the relation presented on page 301 (*National Tax Journal*, December, 1956) we obtain:

$$\frac{M-L}{M} = \left[ T \left( \frac{M-A}{M} \right) \right] \left( \frac{P-L}{P} \right)$$

$\frac{M-L}{M}$  is the fractional capital loss that is avoided by selling immediately instead of holding the security during the price decline.  $\frac{M-A}{M}$  is the portion of the present investment that is a capital gain. Multiplying this by  $T$ , the capital gain tax rate, gives the fraction of the present investment that would be paid in taxes if an immediate sale were

made.  $\frac{P-L}{P}$  is the fractional price rise from the low,  $L$ , to the high,  $P$ . The product of the tax and the price appreciation from its low constitutes a fractional capital gain that is obtained from postponing the tax by holding the security instead of selling and buying back. By holding the security continuously, the capital gains tax is avoided in the first instance, and subsequently a capital gain on the unpaid tax is achieved as a result of the price appreciation from  $L$ .

It is now apparent that the expression on the left of the equality represents the advantage of selling and rebuying (a capital loss is avoided), while the expression on the right represents the advantage of holding (a capital gain is made on the tax whose payment is postponed). The equality, of course, represents the borderline situation in which selling and rebuying, and holding are equally advantageous. When it is expected that the capital loss from holding the security through the price decline would be larger than the capital gain which would result from the capital gain on the postponed tax, then selling and buying back would be preferred. And conversely, if the capital loss was expected to be smaller than the

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gain, continued holding would be preferred.

When the tax payment,  $T \left( \frac{M - A}{M} \right)$ , amounts to say 20 per cent, for indifference between sell and rebuy, and

hold, the expected price appreciation,  $\frac{P - L}{P}$ , must be five times the expected price decline,  $\frac{M - L}{M}$ .

## BOOK REVIEWS

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*Finances Comparées: Etats Unis, France, Angleterre, U. R. S. S.* By HENRY A. LAUFENBURGER. Third edition, 1957. Paris: Recueil Sirey, 22 rue Soufflot. 3,000 francs. x + 490 pp.

*Les Finances de New-York, de Londres et de Paris.* By HENRY A. LAUFENBURGER. Paris: Editions Domat, 158 rue Saint-Jacques. 1956. 2,500 francs. viii + 225 pp.

Although the language barrier will limit the usefulness, in the United States, of these two comparative studies by Professor Laufenburger, they command notice here, both on their merits and on the unique service they render. Anyone who wants in brief compass a comparison of many of the most important features of the public finance systems of the four countries, plus some occasional information on Italy and Germany, must turn to Professor Laufenburger's *Finances Comparées*, and those who need a description of the finances of New York, London, and Paris more up-to-date and more detailed for the latter two cities than that in *The Financial Problem of the City of New York* (1952), will find their need met in *Les Finances de New-York, de Londres et de Paris*.

In the *Finances Comparées*, Professor Laufenburger is more interested in policy problems than in pure description, and consequently the coverage is not proportional throughout, either as to countries or as to topics. A good deal of space is given to developments of recent date, especially in France. This interest in issues guards the volume from the common danger of comparative studies that are constructed on so large a scale, the danger of lapsing into a

mere compilation. Professor Laufenburger's mind is too lively, his opinions too well developed, to allow him to write a mere handbook.

For the American reader, those sections dealing with France form perhaps a better introduction to French finance than the more elaborate treatment in his *Théorie Economique et Psychologique des Finances Publiques*, particularly with respect to budget policy and technique, and the income tax and sales tax structures. There is enough detail to make the French system comprehensible to the American student, while the plan of the book imposes a structural framework on the discussion that keeps the outline of the system in evidence.

*Les Finances de New-York . . .* is a somewhat different type of volume: less impressionist, more painstaking in its detail, perhaps somewhat less interesting for the general public finance student, but invaluable to anyone with a special interest in metropolitan finance. The fifty pages devoted to the finances of London add considerably to the briefer study included in the *Financial Problem* volume of 1952, while the richly detailed account of the financial system of Paris (in which Dr. Melle Rosier assisted Professor Laufenburger), occupying more than 100 pages, far surpasses the somewhat sketchy description in the 1952 New York study. This should prove to be the standard work on the finances of Paris for some years to come, and its value is enhanced by its setting in a volume that also covers London and New York.

CARL S. SHOUP

Columbia University



## BOOK NOTES

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*Financing Unemployment Compensation: Ohio's Experience.* By EDISON L. BOWERS, PAUL G. CRAIG, AND WILLIAM PAPIER. Columbus, Ohio: Ohio State University, 1956. (Bureau of Business Research Monograph 89.) Pp. 314. \$4.00.

This book presents a careful, thoroughgoing study of Ohio's legislative and financial experience under the unemployment compensation law enacted in 1936. As such, it provides a substantial body of information on employment, unemployment, and the cost of public compensation for the unemployed.

The authors were fortunate in having access not only to the detailed records of the Ohio Bureau of Unemployment Compensation, but also to reliable employment records maintained by the Ohio Division of Labor Statistics for most Ohio industries throughout the 1920's and 1930's. These data were used to develop estimates of what unemployment compensation costs might have been under the widely varying economic conditions of those two decades. Although limited to Ohio, the estimates and the analysis of significant variables determining the volume of compensable unemployment are believed to have wider application, since business developments in Ohio have tended to parallel movements in the economy as a whole.

The book not only considers the effects of longer benefit periods and higher maximum weekly benefit payments on the total cost of unemployment compensation, but also the effects of wage guarantees. Based as it is on empirical data, the book provides a valuable reference work for the study of supplemental unemployment benefit plans.

*State Forest Tax Law Digest 1956.* Division of Forest Economics Research, United States Department of Agriculture. Pp. 86.

This edition of the Digest contains summaries of 44 state forest tax laws in effect on December 31, 1956. These summaries are not intended to serve as an official interpretation of any law, although they have been reviewed by interested state officials. The purpose of the book is rather to provide a description in nontechnical language of the essential features of the various laws that are of interest to forest-land owners and to tax and forestry officials of other states.

Summaries are arranged alphabetically by state within five groups: bounty and rebate laws; exemption laws; modified property tax laws; yield tax laws; and severance tax laws. The Digest does not include laws or administrative guides relating to the assessment of forest lands that are subject, like real property in general, to the property tax.

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*State Supervision of Local Assessments.* By WILLIAM M. GRIFFIN. Pp. 55.

*Taxation of Railroad and Other State-Assessed Companies in Florida.* By MERRILL J. ROBERTS. Pp. 45.

*County Property Tax Assessment in Florida.* By ERNEST E. MEANS AND W. M. MARTIN. Pp. 175. (Studies in Government, Nos. 18, 19, and 20 respectively.) Tallahassee, Florida: Bureau of Governmental Research and Service, School of Public Administration, Florida State University, 1957.

These studies were prepared on behalf of the Florida Citizens Tax Council by the Bureau of Governmental Research and Service of Florida State University. Their com-

mon purpose is to acquaint the Tax Council, the members of the legislature and other officials, and the public with factual information concerning their respective subjects. The last two studies (Nos. 19 and 20) contain recommendations by their respective authors, but these are specifically disavowed as official recommendations of the sponsoring organization.

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*State Retail Sales Taxation.* By CLINTON V. OSTER. Columbus, Ohio: Bureau of Business Research, The Ohio State University. 1957. Pp. 257. \$5.00.

In a little over two decades state sales taxes have developed from emergency stop-gap measures into permanent and highly productive sources of revenue in 33 states. This volume provides a wide range of his-

torical, economic, statistical, and legal analyses of this development.

Following a discussion of the importance and nature of sales taxes and a description of their historical development from the days of the Greek city-states to the present, the study turns to an analysis of theoretical considerations—the equity, incidence, and economic effects of sales taxes.

At a more specific, topical level, the study summarizes and analyzes the major sales-tax provisions, practices, and problems in the 33 states which have adopted the tax. A detailed treatment of sales-tax base structure and revenue productivity is restricted, however, to the four leading sales-tax states: California, Michigan, Illinois and Ohio.

Administrative costs and compliance costs in general and special problems relating to Ohio's unique prepaid-tax-receipt system are discussed in the last chapter prior to a general summary.

## NTA NOTES

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### *Notes from the President's Desk*

The Membership Committee, headed by Vice-President Ken Allen of the University of Illinois, is making fine progress. The country has been divided into eight regions, with a chairman for each region and a large group to assist him. All organizational work has been completed, and recruiting will be underway within the next thirty days.

Visitors. The next time you happen to be in Harrisburg, Pennsylvania, please visit the offices of the National Tax Association located in the Payne-Shoemaker Building. You will enjoy a visit to the offices. They are commensurate with the type of organization we are.

The new theory of operation is to be of service to the entire membership. As stated in the March issue of the JOURNAL, please send your ideas to the various committees. The officers and Executive Committee are doing their best to please the entire membership, but it is a hard task to do this job without help; therefore, we solicit ideas, comments, suggestions from everyone of you.

Contributions of articles to the JOURNAL are respectfully solicited from all members of National Tax Association. The Executive Committee is most desirous not only that the high standard of this publication in the tax field be maintained, but also that it represent the interest of all classes of its members, including the corporate. These articles and communications or inquiries in regard thereto, should be addressed to Lawrence E. Thompson, Editor, National Tax Journal, Soldiers Field, Boston, 63, Massachusetts.

### *Executive Committee*

Meetings of the National Tax Association Executive Committee, including the officers, are held four times a year. A meeting consumes two days' time. The meetings so far this year have been held at St. Louis in January and New York City in April. The forthcoming meeting will be held in Salt Lake City in July. The last meeting, prior to the Columbus conference, will be held in September at a place yet to be designated. The quorum number is nine. However, this year fourteen have attended each of the meetings so far held.

The Executive Committee at its last meeting authorized the President to create a subcommittee of the Executive Committee to make recommendations for honorary memberships in the National Tax Association. The subcommittee consists of Messrs. Elkin, Brickhouse, Bowers, Welch and Clark.

Also, at the last Executive Committee meeting the President was authorized to create a committee to study "Cost of Financing Education, Elementary and High School." This committee is the outgrowth of one of the fine recommendations of the Services to the Membership Committee headed by Mr. Quaremba.

### *Golden Anniversary Conference*

An excellent program is being arranged by the Committee headed by Stan Bowers. We are indeed fortunate to have Emory Glander as Chairman of the Local Arrangements Committee and Stan Bowers as Chairman of the Program Committee.

The place of the meeting is the Deshler-Hilton Hotel in Columbus. The Executive Director has visited Columbus and reports the facilities are excellent. There will be ample room for all attending, and furthermore, the accommodations for the meetings and other functions of the conference leave nothing to be desired. Room reservation cards will be mailed to all members from the office of the Executive Director in the near future.

It is requested that anyone having badges issued at prior conferences of National Tax Association or any other historical material such as programs, etc. correspond with C. Emory Glander, Chairman, Local Arrangements Committee, Huntington Bank Building, Columbus, Ohio. Any such material will be carefully guarded by the Committee and returned to the owner. It is our desire to display such material and make the *Golden Anniversary Conference* as interesting as possible.

There will be a *Big Ten Conference Football Game* (Indiana vs. Ohio State) at Columbus, on Saturday, October 19, 1957. Anyone planning early arrival at the Conference who desires to see this game should make his request for reservations to Stanley J. Bowers, Tax Commissioner of Ohio, Columbus, Ohio, and accompany same with check.

Reserved Seats \$4.00 each, including tax

Box Seats \$5.00 each, including tax

Reservations, with checks, must reach Mr. Bowers before September 1, 1957.

#### *Nominating Committee*

The 1957 Nominating Committee will submit nominations for President, Vice-President, Secretary and Treasurer, four regular Executive Committee members and two honorary Executive Committee members at the annual meeting of the Association in Columbus, Ohio on Thursday, October 24, 1957. The Committee must report its selections to the Secretary, Ronald B. Welch, State Board of Equalization, Sacramento, California, not later than July 23, 1957. Meanwhile suggestions may be offered by any member of the Association to the Committee, which consists of Robert S. Ford, Chairman, of Michigan; H. Clyde Reeves of Kentucky; Carter T. Louthan of New York; John L. Sullivan of Connecticut; and Paul H. Zweifel of California.

#### *N.T.A. Study Committee*

William G. Murray, Chairman of the N.T.A. Committee on Equalization of Tax Assessments, announces a meeting of his committee in Chicago, Illinois, on Monday, September 16, 1957 in the Conference Room at 1313 E. Sixtieth Street (location of N.A.T.A. headquarters).

#### *General News Items*

The Missouri Tax Commission is now in the second phase of its successful equalization program. This phase covers the equalization of assessments serviced and authorized under its jurisdiction, in this case, equalization of assessments of corporations.

The Assessment Coordination Department of the State of Arkansas is preparing for another one of its fine Assessment Seminars for all county assessors. This Seminar is to be conducted at the University of Arkansas, Fayetteville, Arkansas, from June 19 through June 21st.

The annual conference of National Association of Tax Administrators was held at Poland Spring, Maine, June 2-5, 1957. The following officials of National Tax Association were in attendance: President Reuther, Past Presidents Connelly and Pierce, Secretary Welch, Executive Committee members Bowers, Chandler, Herzel, Livingston, Clark and Executive Director Kress. Stan Bowers ended a successful term as President of N.A.T.A.—Otis Livingston was elected to succeed him. Messrs. Reuther, Pierce, Bowers, Livingston and Welch participated in the program.

#### *New Members*

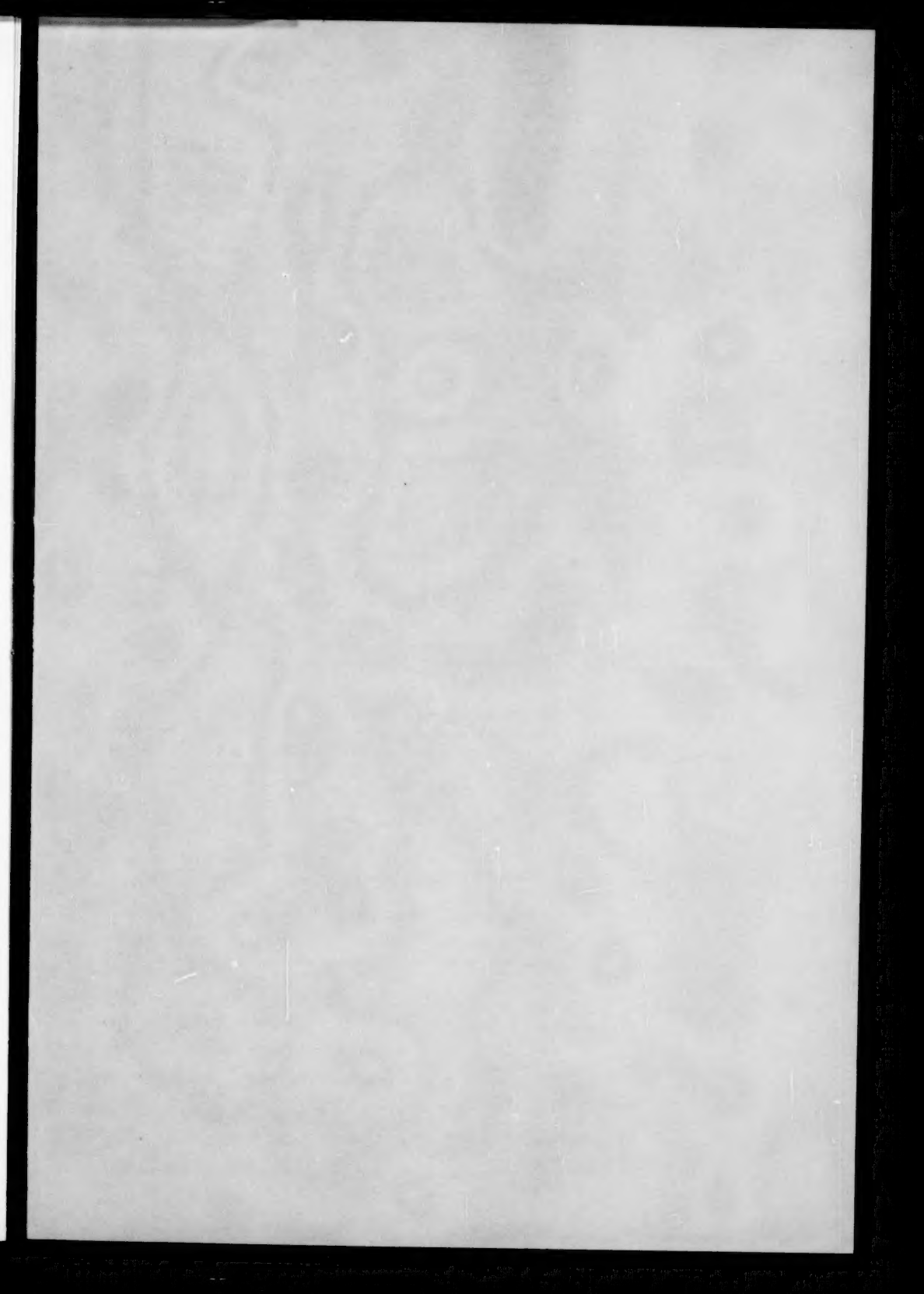
We are glad to welcome into National Tax Association approximately twenty (20) new corporate members and approximately seventy (70) new members in the categories other than corporate. We trust they will enjoy their membership in National Tax Association and welcome their participation in all activities of N.T.A. We particularly invite their attendance at the *Golden Anniversary Conference* to be held at the Deshler-Hilton Hotel in Columbus, Ohio, October 21-25, 1957.

#### *Harrisburg Office*

The issuance of this copy of the JOURNAL coincides with the transfer of all remaining functions of the headquarters office of the National Tax Association from Sacramento, California to Harrisburg, Pennsylvania.

Accordingly, all communications, applications for membership, payment of dues and subscriptions, bills or statements, inquiries, suggestions and other correspondence should be addressed to Walter J. Kress, Executive Director, National Tax Association, 905 Payne-Shoemaker Building, Harrisburg, Pennsylvania. Telephone number: Harrisburg, CEdar 2-5725.

WALTER J. KRESS, *Executive Director*



# NATIONAL TAX ASSOCIATION

Organized 1907 — Incorporated 1930

**OBJECT.** The National Tax Association is a non-political, non-sectarian, and non-profit-making educational organization. Its object, as stated in its certificate of incorporation, is to educate and benefit its members and others by promoting the scientific study of taxation and public finance; by encouraging research; by collecting, preserving, and diffusing scientific information; by organizing conferences; by appointing committees for the investigation of special problems; by formulating and announcing, through the deliberately expressed opinion of its conferences, the best informed thought and ripest administrative experience available; and by promoting better understanding of the common interests of national, state, and local governments in the United States and elsewhere, in matters of taxation and public finance and interstate and international comity in taxation.

**MEMBERSHIPS.** The Association welcomes to its membership, for mutual discussion and deliberation, all who may be interested in taxation and public finance generally. Annual dues are: memberships for students in recognized institutions of higher learning, \$10; memberships for government agencies, schools, and persons receiving more than one-half of their income from employment by such agencies or schools, \$10; memberships for other individuals and unincorporated entities, \$25; corporate memberships, \$100; persons wishing to contribute more liberally to the support of the Association, \$100 to \$1000.

**PUBLICATIONS.** The NATIONAL TAX JOURNAL is published quarterly in March, June, September, and December. PROCEEDINGS of the annual conferences on taxation which are sponsored by the Association are published soon after the meetings. The JOURNAL and the PROCEEDINGS are sent to members without charge. To non-members the price of the JOURNAL is \$5.00 per year, single numbers, \$1.50. The prices of the PROCEEDINGS vary; that of the 1956 volume is \$10.50.

Applications for membership, orders for publications, and general inquiries should be addressed to Walter J. Kress, Executive Director, National Tax Association, 905 Payne-Shoemaker Building, Harrisburg, Pennsylvania.

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## OFFICERS

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The above officers ex-officio, the two ex-presidents who have last held office, twelve elected members, and two honorary members

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